pregnated with this mineral. In some parts the organic tissue has been entirely removed, and nodules of the sulphuret have taken its place; in others the mineral has entered the cells and tubes of the wood, leaving these of their natural forms. Occasionally perfect casts of the cells are found detached from the tissue when the specimen is mounted in Canada balsam.

It was of course highly desirable that these woods should be submitted to microscopical examination. He found, however, upon trial that it was impossible to cut satisfactory sections without removing the sulphuret of iron. This was done by macerating pieces of the wood in dilute chlorhydric acid. After this process they were readily cut into sections with a suitable knife, or ground down till the requisite degree of tenuity was obtained.

Sections thus obtained when placed under the microscope showed conclusively that the wood was of the coniferous family of plants. For some time Dr. H. was under the impression that one fragment belonged to an entirely different class. This idea arose from the fact that from an examination of eight or ten vertical sections none of the characteristic pits or cells could be perceived, nor any indication of the existence of medullary rays. Finally, however, he obtained a section which exhibited both very clearly, and a transverse section which previously he was unable to cut, positively determined it to be of the same character as the other pieces.

Some cause or other, probably the carbonizing process, had entirely destroyed the pits which had existed; a fact of some importance in investigations of this nature. All the fragments appear to belong to the same species of conifer, and as far as Dr. H. could judge do not differ essentially in microscopic characters from the pines which now grow on the locality.

Mr. T. Edwards Clark had kindly given him some specimens of a fossil wood described by Unger, which in many respects resembles that referred to, the pits being absent from a large portion of the tissue.

On leave granted, the thanks of the Academy were tendered to his Excellency, Wm. F. Packer, Governor of the State, for the donation of a White Deer, presented this evening.

Dec. 21*st.*

Vice-President BRIDGES in the Chair.

Forty-one members present.

Papers were presented for publication in the Proceedings, entitled:

Description of new genera and species of N. American Lizards, in the Museum of the Smithsonian Institution, by Spencer F. Baird.

Remarks on the lower Cretaceous beds of Kansas and Nebraska, with descriptions of some new species of Carboniferous fossils from the valley of the Kansas River, by F. B. Meek and F. V. Hayden.

And were referred to Committees.

Dec. 28*th.*

Vice-President BRIDGES in the Chair.

Sixty-five members present.

The Report of the Biological Department for December was presented.

On report of the respective Committees, the following papers were ordered to be printed in the Proceedings:

Ichthyological Notices.

BY CHARLES GIRARD, M. D.

I.

Those interested in the study of American animals, and of fishes in particular, will hear with interest, of the discovery recently made, of a representative of the Myxinoid family on the north-eastern coast of this continent. It belongs to the genus *Myxine*, so carefully and skilfully investigated by Joh. Müller. It is the more interesting to comparative anatomists, as it typifies the lowest grade of the vertebrated plan of structure. The species which we allude to closely resembles the European one, *M. glutinosa;* like it, it is an inhabitant of a rather high latitude, and its habits or mode of living are quite as little understood. The only specimens that were ever found were collected by my friend, W. Stimpson, who gave most of his specimens to Prof. Agassiz, reserving but one, which he deposited in the Museum of the Smithsonian Institution.

The latter specimen is eleven inches and a half long: the thoracic region alone is subcylindrical; the abdominal and caudal regions being quite compressed and somewhat tapering. The dorsal fin begins somewhat posteriorly to the branchial apertures as a mere fold of the skin, increasing very slightly in elevation towards the spear-shaped tail, being highest posterior to the vent. The latter, in the form of an elongated split, is situated nearly an inch and a half from the tip of the tail where the anal fin meets with the dorsal, of which it has both the aspect and development. A membranous fold or abdominal fin, a good deal more developed than the dorsal one just alluded to, may be observed all along the abdominal region, from the vent to the branchial apertures, being continuous with the anal fin, properly so called, the vent itself not affecting materially its continuity, since it is partly situated between a double fold at the origin of the anal fin. As regards the branchial apertures themselves, the left one is larger than the right, which is placed somewhat in advance and sideways of the left; they are situated about three inches from the apex of the snout. The double series of abdominal mucous pores (one on either side), are conspicuous upon the removal of the slimy investment; the pores being about an eighth of an inch apart. The head is small, continuous with the body; its anterior aspect is shelving inwardly downwards, the snout being subconical, at the apex of which may be observed four subequal tentacles closely grouped together, directed upwards and inserted, two on either side, upon the very edge of the spiracle which they seem to protect, together with a small flap at its posterior margin. The buccal aperture is anterior, below the declivity of the snout; it is divided into two parts by a lateral convoluted lip, the upper part being subtriangular or subcordiform, the lower part transverse and elongated; its lower periphery is rumpled. The third pair of tentacles is the largest of all, and inserted, one on either side, near the upper and outer edge of the convoluted lateral lip just alluded to. It hangs downwards like the fourth pair, which is the smallest and rather inconspicuous, inserted near the inner and lower edge of the same convoluted lip, over the lower part of the buccal aperture. Thus the eight tentacles constitute four pairs: two rostral pairs presiding over the spiracle; and two buccal pairs presiding over the mouth, one at the upper part, the other at the lower. The palatine tooth is slender and elongated. The four rows of lingual teeth are composed each of seven sublanceolated and acute teeth, much larger in the interior than in the posterior rows. They are very crowded and inclined backwards or rather inwards; the anterior row overlapping the base of the posterior one.

The color is of a uniform reddish brown or chestnut tint, somewhat lighter beneath than above. The membranous fold along the abdomen being whitish. The head and anterior aspect of the snout, tentacles and mouth, are whitish also.

From the foregoing remarks it is easy to perceive that we have on the Ameri-

can coast a distinct speeies of the genus *Myxine*, chiefly to be distinguished from its European analogue, by the external aspect of the snout, and buccal aperture, the insertion and proportional development of the tentacles, the form of the body, and by the presence of a membraneous fin-like expansion along the abdomen. To distinguish it henceforwards we propose calling it *M. limosa*. It was collected in great abundance on muddy bottoms, off the island of Grand Manan, Bay of Fundy, by fifty fathoms of depth.

II.

Sometime during the month of September last, a "giant herring," as it was called by fishermen, was caught off Long Island; its total length being five feet, and its weight forty-seven pounds. The trophy was brought to New Haven, where, after a preliminary survey, the prize was cut into pieces, and sold for the table. My friend Wm. H. Dougal, of Georgetown, D. C., well known as an artist of the first order, happening to be at New Haven at the time, and struck at the beauty of a fish, which he had never seen before, drew up an accurate outline of its body and fins, counted the rays of the fins, and the scales of the lateral line, preserving at the same time a few scales taken upon various regions of the body. With these materials on hand, and which we owe to his friendship, we have been enabled to refer this fish, not only to its family and proper genus, but its specific characters to a certain extent could likewise be analysed.

In 1846, Valenciennes withdrew the genera *Elops* and *Megalops* from the herring family (*Clupeidæ*), in which they were formerly included, and proposed to erect for them the family of *Elopidæ*. The genus *Megalops* was framed by Commerson upon a species of the Indian Ocean, the history of which got interwoven with one from the West Indies, until Valenciennes established their specific difference, calling the former *M. indicus*, and the latter *M. atlanticus*. It is to be regretted that the West Indian fish is not more fully described; Valenciennes description being brief and comparative with that of the East Indian species. It is nevertheless sufficient to establish the fact that the "giant herring" brought to New Haven, has a more elongated and subfusiform body, a more elongated head, an eye so much smaller that it never could have suggested the generic name of Big-Eye (*Megalops*). The ventral fins are also inserted more in advance of the anterior margin of the dorsal fin. The latter is subtriangular and rather small, its posterior elongated ray not extending as far as the base of the caudal; whilst the anal is long and very low, deeply emarginated upon its lower edge, which has the shape of an open crescent, the posterior ray being elongated and extends as far as the rudimentary rays at the lower lobe of the caudal. The formula of the rays is: D 13; A 24; C 20; V 9; P 14. The rudimentary rays of the caudal not being taken into account, the number given to that fin appears a good deal smaller than in the other species of the genus, when in reality it is identical. The scales are deeper than long, rounded off, scalloped upon their anterior margin, and undulated upon the upper, posterior and lower margins. Fifty of them were counted in the lateral line. Three or four radiating furrows may be observed upon their anterior section only. A silvery tint prevails all over the body and head; the dorsal region, however, assuming a much darker hue than the middle of the flanks and the belly. The coloration is nearly alike in all the species of this genus. From the characters alluded to, we infer the existence of a species hitherto undescribed, allied to *M. atlanticus*, and for which we propose the name of *M. elongatus*. It is probable that its habitat is the gulf of Mexico, and that the specimen caught off Long Island is a strayed individual that has followed the gulf stream on a northwards journey.

III.

Since my report upon the Fishes of the U. S. P. R. R. Explorations and Surveys has passed through the press, new facts relating to the history of the salmons of the Columbia River have come to our knowledge, calling for various

rectifications of synonymy. The species which is figured and described under the name of *Fario gairdneri* is not the *Salmo gairdneri* of Sir John Richardson. Nor does it appear to be any of the other species recorded in the "Fauna Boreali Americana." To distinguish it henceforwards from its congeners we will call it *Fario newberrii*, or else *Salmo newberrii*, just as it may suit systematic writers. It is sufficient for the present to refer to the description alluded to above.

My friend Dr. Geo. Suckley, who has devoted much time in studying the manners and habits of the Salmonidæ of Oregon and Washington Territories, being now engaged on a work upon that family, I leave the rest of the subject with him, without further comment upon the specimens which he has himself collected.

IV.

In that same Report upon the Fishes of the U. S. P. R. R. Explorations and Surveys we have instituted the genus *Thaleichthys* upon a species of Salmonid which we had at first glance referred to the genus *Osmerus*. In treating of its characters, comparatively with both *Osmerus* and *Argentina*, to which genera it is closely allied, we omitted accidentally to compare it with the genus *Mallotus*, to which it bears some affinities, but from which it however differs by a more anterior position of the dorsal and ventral fins, by its small and lanceolated pectorals, and by the absence of maxillar teeth. As to the species referred to under the name of *Thaleichthys stevensi*, a further examination having shown its identity with *Salmo (Mallotus?) pacificus* of the "Fauna Boreali Americana," it is henceforwards to be designated under the name of *Thaleichthys pacificus*.

Prodromus descriptionis animalium evertebratorum, quæ in Expeditione ad Oceanum Pacificum Septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers Ducibus, observavit et descripsit

W. STIMPSON.

PARS VII. *CRUSTACEA ANOMOURA.*

I. *TELEOSOMI.*

Segmentum ultimum thoracicum non liberum.

SYNOPSIS DROMIDEORUM.

A. Pedes 4ti 5tique paris subprehensiles.

DROMIDIA, nov. gen. Carapax convexus, pilosus. Palatum utrinque colliculo instructum. Fœminæ sterni sulci ad segmentum chelipedum producti et in tuberculum approximati; appendices abdominis articuli penultimi minutæ, celatæ. Pedes iis *Dromiæ* similes.

Typus, D. hirsutissima. *Dromia hursutissima*, Lam'k; An. s. vert. v. 264. Desm.; Consid. sur les Crust. p. 137, pl. xviii. f. 1.—Africa Australi.

D. Antillensis, Stimpson.—Ins. Antillarum.

D. spongiosa et excavata, infra.

? *Dromia globosa*, Lam'k; l. c. v. 264.

? *Dromia gibbosa*, M. Edw.; Hist. Nat. des Crust. ii. 175.

? *Dromia unidentata*, Ruppel; Beschr. und Abbild. Kurzschw. Krabben, 16, pl. iv. f. 2.—Sinu Arabico.

? *Dromia rotunda*, McLeay; in Smith's Hist. S. Afr. Zool., p. 71. Africa Australi.

CRYPTODROMIA, nov. gen. Carapax convexus, pubescens, vix pilosus. Palatum utrinque colliculo instructum. Fœminæ sterni sulci remoti, ad segmentum pedum secundi paris tantum producti, terminis in tuberculis. Pedes iis *Dromiæ* similes, sed nodosi. Species parvæ.

Typus, C. coronata, infra.
C. nodipes. *Dromia nodipes*, Lam'k.; Guerin; Icon. pl. xiv. f. 1.
C. lateralis. *Dromia lateralis*, Gray; Zool. Misc. 40.—Australia.
C. tuberculata, tumida, et canaliculata, infra.
? *Dromia fallax*, Lam'k.; M. Edw.; Hist. Nat. des Crust. ii. 179.—Ins. Mauritii.
? *Dromia caput-mortuum*, M. Edw.; Hist. Nat. des Crust. ii. 173.—Mari Orientali.

Dromia, Fabr. Carapax transversus, convexus, pilosus. Palatum læve. Fœminæ sterni sulci ad segmentum pedum secundi paris tantum producti, non approximati. Pedes mediocres, mero non dilatato; digitis primi paris apicibus calcareis; pedes 4 postici reliquis minores, breviores, extremitatibus subcheliformes, processu spiniformi art. penultimi terminali.
Typus, D. vulgaris, M. Edw.; Cuv. Reg. Anim. Crust. pl. xl. f. 1.—Europa.
D. Rumphii, Fabr.; De Haan; Fauna Japonica, Crust. pl. xxxii.; M.-Edw.; Hist. Nat. des Crust. ii. 174.—Mari Sinensi.
D. lator, M. Edw.; Hist. Nat. des Crust. ii. 174.—Insulis Antillarum.
? *D. indica* Gray; Zool. Misc. 40. Griff. Cuv. Cr. pl. xxiv.—Mari Orientali.

Pseudodromia, nov. gen. Carapax elongatus, convexus, pubescens; postice parum induratus. Regio faciei dimidia carapacis latitudinis multo latior. Epistoma, (v. triangulum interanten nularium,) fronti non junctum. Palatum utrinque colliculo instructum. Fœminæ sulci sterni ——? Abdominis maris art. penultimi appendices minutæ, celatæ. Pedes iis *Dromiæ* fere similes, sed 5ti paris longissimi, eis 2di paris multo longiores.
Typus, P. latens, infra.

Petalomera, nov. gen. Carapax oblongus, convexus, epimeris post suturam membranaceis. Palatum utrinque colliculo instructum. Fœminæ sterni sulci ——? Meri pedum sex anticorum laminato-dilatati. Chelipedum digiti apicibus cornei, cochleariformes. Pedes 4 postici iis *Dromiæ* similes.
Typus, P. granulata, infra.

Conchœcetes, nov. gen. Carapax depressus, oblongo-subpentagonus. Pedes 4ti paris quam 3tii paris robustiores, subcheliformes, dactylo valido, hamato; processu art. penultimi obtuso, basali. Pedes 5ti paris gracillimi, non subcheliformes, dactylo minuto, contorto. Testas bivalvarum ferentes.
Typus, C. artificiosus. *Cancer artificiosa*, Herbst; Naturg. d. Krabben u. Krebse, iii. 54, pl. lviii. f. 5.—Mari Sinensi.

Hypoconcha, Guerin; (Rev. et Mag. Zool. ser. 2d. vi. 333.) Carapax deplanatus, superne membranaceus. Fœminæ sterni sulci ut in *Dromiâ*. Pedes 4 postici non subcheliformes, dactylo lunato, pedunculato. Testas bivalvarum ferentes.
Typus, H. sabulosa, Guerin; loc. cit. pl. v.—Ins. Antillarum.
H. arcuata, Stm.—Ins. Antillarum.

B. Pedes 5ti paris solum subprehensiles.

Dynomene, Latreille; M.-Edw. (Hist. Nat. des Crust. ii. 179.) Frons lata. Fœminæ sterni sulci remoti. Appendices abdominis art. penultimi majores. Pedes 5ti paris gracillimi.
Typus, D. hispida, Latr., M.-Edw.; Reg. Anim. Crust. pl. xl. f. 2.—Ins. Mauritii.
D. Latreillii, Eyd. et Soul.; Voy. Bonite, Crust. pl. iii. f. 3–5.

LATREILLIDEA;—genus unicum Latreillia, Roux. :—Conf. De Haan; Fauna Japonica, Crust. 105.

HOMOLIDEA;—genus unicum Homola, Leach;—Conf. M. Edw.; Hist. Nat. des Crust. ii. 181.

[Dec.

RANINIDEA;—Conf. Dana U. S. Expl. Exp. Crust. i. 403.

II. *SCHIZOSOMI.*

Segmentum ultimum thoracicum liberum.

SYNOPSIS PORCELLANIDEORUM.

A. Antenarum externarum articulus primus brevis, marginem carapacis superiorem non attingens.

PETROLISTHES, nov. gen. Carapax depressus, subovatus, non latior quam longior; fronte triangulari, margine plus minusve undulata, dentata vel integra. Oculi sat grandes. Antennarum pedunculus plus minusve cristatus. Chelipedes lati, depressi. Pedum ambulatoriorum dactyli normales, i. e. breves, sat robusti, unguiculo unico.

Typus, P. violaceus. *Porcellana violacea*, Guerin; Mag. de Zool., 1838, p. 5, pl. xxv. f. 2. *P. macrocheles*, Pœppig.—Chili.

P. validus. *Porcellana valida*, Dana; U. S. Expl. Exp. Crust. i. 415. pl. xxvi. f. 5.—Chili.

P. rupicolus. *Porcellana rupicola*, Stm.; Crust. et Echin. Pacif. Coast of N. America, p. 40. Bost. Jour. Nat. Hist. vi. pl. xx. f. 2.—California.

P. tridentatus, Stm.—Ins. Antillarum.

P. elongatus. *Porcellana elongata*, M.-Edw.; Hist. Nat. des Crust. ii. 251.—Nova Zelandia.

P. gracilis, Stm.—Sinu Californico.

P. Japonicus. *Porcellana Japonica*, De Haan; Fauna Jap. Crust. 199. pl. l. f. 5.—Mari Japonico.

P. asiaticus. *Porcellana asiatica*, Gray, Zool Misc. 15.—Asia.

P. politus. *Porcellana polita*, Gray; Zool. Misc. 15; Griff. Cuv. xiii. 312, pl. xxv. f. 2. *P. magnifica*, Gibbes; l. c. 191.—Ins. Antillarum.

P. armatus. *Porcellana armata*, Gibbes; Proc. Am. Assoc. 1850, p. 190. —Florida.

P. marginatus, Stm.—Ins. Antillarum.

P. maculatus. *Porcellana maculata*, M.-Edw.; Hist. Nat. des Crust. ii. 253.—Nova Hibernia.

P. Lamarckii. *Pisidia Lamarkii*, Leach. *Porcellana Lamarckii*, M.-Edw.; Hist. Nat. des Crust., ii. 551.—Nova Hibernia.

P. speciosus. *Porcellana speciosa*, Dana; loc. cit. i. 417. pl. xxvi. f. 8.—Mari Pacifico.

P. scabriculus. *Porcellana scabricula*, Dana; loc. cit. i. 424. pl. xxvi. f. 13.—Mari Orientali.

P. dentatus. *Porcellana dentata*, M.-Edw.; Hist. Nat. des Crust. ii. 251.—Java.

P. tomentosus. *Porcellana tomentosa*, Dana; loc. cit. i. 420. pl. xxvi. f. 10.—Mari Pacifico.

P. Boscii. *Porcellana Boscii*, Savigny; Egypt, Crust. pl. vii. f. 2.—Egypt.

P. rugosus. *Porcellana rugosa*, M.-Edw.; Hist. Nat. des Crust. ii. 252.

P. hirsutus. *Porcellana hirsuta*, Gray; Griffiths' Cuvier, xiii. 312. pl. xviii.

P. Edwardsii. *Porcellana Edwardsii*, De Saussure; Rev. et Mag. Zool., 1853, v. 366. pl. xi. f. 3.—Mazatlan.

P. sexspinosus. *Porcellana sexspinosa*, Gibbes; loc. cit. 190. *P. galathina*, Gray, Say.—Florida.

P. occidentalis, Stm.—Panama.

P. tuberculatus. *Porcellana tuberculata*, Guerin; Mag. de Zool., 1838, p. 6. pl. xxvi. f. 2. *P. lobifrons*, M.-Edw.—Chili.

P. tuberculifrons. *Porcellana tuberculifrons*, M.-Edwards et Lucas; in D'Orb. Voy. en l'Am. Merid., Crust. p. 33. *P. affinis*, Guerin.—Chili.

P. tuberculosus. *Porcellana tuberculosa*, M.-Edw.; Hist. Nat. des Crust. ii. 256.—Chili.

P. acanthophorus. *Porcellana acanthophora*, M.-Edw. et Lucas; in D'Orb. Voy. en l'Am. Merid., p. 33. pl. xvi. f. 2.—Chili.

P. coccineus. *Porcellana coccinea*, Owen; Beechy's Voy. Zool., 87. pl. xxvi.—Ins. Hawaiensium.

P. pubescens et hastatus, infra.

? *Porcellana Desmarestii*, Eyd. et Gerv.; Voy. de la Favorite, v. pl. iii. f. 1.—Chili.

? *Porcellana lævigata*, Guerin; Mag. de Zool., 1838, p. 5, No. 2.—Chili.

? *Porcellana affinis*, Gray; Zool. Misc. p. 15.

? *Porcellana cinctipes*, Randall; Jour. Acad. Nat. Sci. Philad. viii. 136.—Ins. Hawaiensium.

? *Porcellana granulosa*, Guerin; Mag. de Zool. 1858, p. 6, pl. xxv. f. 1.—Chili.

Pisosoma, nov. gen. Carapax rotundatus, sat convexus, non longior quam latior. Frons superne visa recta, integra. Chelipedes crassi. Dactyli pedum ambulatoriorum normales.

Typus, P. pisum. *Porcellana pisum*, M. Edw.; Hist. Nat. des Crust. ii. 254.—Mari Orientali.

P. sculptum. *Porcellana sculpta*, M. Edw.; Hist. Nat. des Crust. ii. 253.—Mari Orientali.

P. Riisei, Stm.—Ins. Antillarum.

? *Porcellana viridis*, Gray; Zool. Misc. p. 15. *Pisidia viridis*, Leach.

B. Antennarum externarum articulus primus plus minusve productus et margini carapacis junctus; articulus secundus orbitâ remotus.

Raphidopus, nov. gen. Carapax rotundatus, latior quam longior. Frons non prominens, fere recta, tridentata. Oculi minuti. Pedum ambulatoriorum dactyli longi, recti, gracillimi compressi et acutissimi.

Typus, R. ciliatus, infra.

Pachycheles, nov. gen. Carapax rotundato-ovatus, non longior quam latior; epimeris postice solutis, parte posteriore quadrata, interstitio cutaneo disjuncta. Frons medio parum prominens, subacuta. Antennarum articulus primus minus productus. Chelipedes crassissimi, rugosi; carpo brevi. Pedum ambulatoriorum dactyli normales.

Typus, P. grossimanus. *Porcellana grossimana*, Guerin; Mag. de Zool. 1838, pl. 26, f. 3.—Chili.

P. rudis, Stm.—California.

P. natalensis. *Porcellana natalensis*, Krauss; Sudafr. Crust., 58, pl. iv. f. 1.—Africa Australi.

P. moniliferus. *Porcellana monilifera*, Dana; loc. cit. i. 413, pl. xxvi. f. 3.—Brazilia.

P. pectinicarpus et Stevensii, infra.

Megalobrachium, nov. gen. Carapax rotundatus, non longior quam latior. Frons angusta, laminata, parum prominens, fere recta. Oculi minuti. Chelipedes crassi, mero magno, manu brevi. Pedum amb. dactyli normales.

Typus, M. granuliferum, Stm.—Ins. Antillarum.

Porcellana, Lam'k, restrictum. Carapax plerumque longior quam latior, lateribus carinatus; epimeris integris. Frons sat lata, prominens, plus minusve dentata. Orbitæ profundæ. Antennarum articulus primus valde productus, intus acutus. Chelipedes sat depressi; carpo brevi, margine anteriore sæpius unilobato; digitis sæpius contortis. Pedum amb. dactyli normales, sat longi.

Typus, P. platycheles, Lam'k; An. s. vert., v. 230.—Europa.

P. Sayii, Gray; Zool. Misc. 15.

P. pilosa, M. Edw.; Hist. Nat. des Crust.; ii. 255.—Carolina.

P. ocellata, Gibbes; loc. cit. 190.—Florida.

P. longicornis, M.-Edw.; Hist. Nat. des Crust., ii. 257. *Pisidia longicornis*, Leach. *Porcellana Leachii*, Gray.—Europa.

P. Dehaani, Krauss; Sudafr. Crust., 59, pl. iv. f. 2.—Africa Aust.

P. armata, Dana; l. c. i. 426, pl. xxvi. f. 14, (non Gibbes.)—Mari Orientali.

P. suluensis, Dana; l. c. i. 414, pl. xxvi. f. 4.—Mari. Orientali.

P. serratifrons, dispar, latifrons, streptocheles, pulchra, et ornata, infra.

? *P. punctata*, Guerin; Icon. Cr., pl. xviii. f. 1. *P. cristata*, Edw.—Peru.

? *P. angulosa*, Guerin; Voy. Favorite, v. 175. pl. ii, f. 3.—Chili.

? *P. sociata*, Say; Journ. Acad. Nat. Sci. Philada., i, 457.—Carolina.

? *P. minuta*, Westwood and Hailestone; in Loudon's Mag. Nat. Hist., viii. 265; f. 265–270, 1835.—Anglia.

? *P. mitra*, Dana; loc. cit. i. 419, pl. xxvi., f. 9.—Peru.

MINYOCERUS, nov. gen. Carapax angustus. Frons tridentata. Antennulæ longiores, articulo primo magno, depresso, dentato. Antennarum articulus primus ei *Porcellanæ* similis; pars mobilis minuta, quadriarticulata, quam art. primus non longior. Chelipedes debiles. Pedum amb. dactyli normales.

Typus, M. angustus. *Porcellana angusta*, Dana; loc. cit. i. 423, pl. xxvi. f. 12.—Brasilia.

PORCELLANELLA, White. (Voy. Rattlesnake, ii. 394.) Carapax oblongus, multo longior quam latior, lateribus fere parallelis; lobulis gastricis obsoletis. Frons horizontalis, laminiformis, valde prominens, tridentata. Antennæ ei *Porcellanæ* similes. Chelipedes læves, carpo brevi, manu elongata. Pedes ambulatorii parvi, mero crasso, dactylis brevibus, uncinatis, compressis, multi-unguiculatis.

Typus, P. triloba, White; l. c., ii. 394, pl. v. f. 2.

P. picta, infra.

POLYONYX, nov. gen. Carapax rotundato-ovalis, latior quam longior, convexus, lævis. Frons sat angusta, recta. Antennularum articulus primus non dentigerus. Antennarum articulus primus prælongus. Oculi minuti. Chelipedes læves; mero magno. Pedum amb. dactyli brevissimi, lati, intus bi- vel multi-unguiculati. *Megalobrachio* affinis, dactylis exceptis.

Typus, P. macrocheles. *Porcellana macrocheles*, Gibbes; Proc. Am. Assoc. 1850, p. 191.—Carolina.

P. biunguiculatus. *Porcellana biunguiculata*, Dana; loc. cit. i. 411, pl. xxvi. f. 1.—Mari Orientali.

P. sinensis, infra.

SYNOPSIS HIPPIDEORUM.

HIPPIDÆ.

Pedes antici non subcheliformes. Antennæ externæ aciculo carentes. Maxillipedes externi operculiformes, exognatho nullo.

REMIPES, Latreille, M.-Edw. (Hist. Nat. des Crust., ii. 204). Antennæ externæ breves. Maxillipedum externorum palpus paullo unguiformis. Pedes antici longi, dactylo mediocri, robusto, subcylindrico.

Typus, R. testudinarius, Latr., M.-Edw.; Hist. Nat. des Crust., ii. 206.—Mari Orientali.

R. marmoratus, Humbr. et Jacq.; Voy. au Pole Sud, Atlas, Inv. pl. viii. f. 22.

R. pacificus, Dana; loc. cit. i. 407., pl. xxv. f. 7.—Mari Pacifico.

R. hirtipes, Dana; loc. cit. i, 408, pl. xxv. f. 8.—Mari Orientali.

R. barbadensis, Stm. *Squilla barbadensis ovalis*, Pétiver; Pætrigr. Americana, pl. ii. f. 9.—Ins. Antillarum.

R. scutellatus, Leach, White; Brit. Mus. Cat., 1847, p. 57. *Hippa scutellata*, Fab.; Ent. Syst. ii. 474.—Mari Australi.

MASTIGOPUS, nov. gen. Antennæ breves. Maxillipedes externi oblongi; meri apice truncato. Pedes antici prælongi, dactylo flagelliformi, multiarticulato.

Typus, M. gracilis, infra.

HIPPA, Fabr., M. Edw. (Hist. Nat. des Crust. ii. 207.) Antennæ longæ. Maxillipedes externi grandes, palpo tenui. Pedes antici breves, dactylo ovato, laminato.

Typus, H. emerita, Fabr., M.-Edw.; Hist. Nat. des Crust. ii. 209. *Cancer emeritus*, Lin.—Brasilia.

H. talpoida, Say; Jour. Acad. Nat. Sci. Philada. i. 160.—Virginia.

H. analoga, Stm. Crust. et Echin. Pacific Coast of N. Am. p. 46.—California.

H. asiatica, M. Edw.; Hist. Nat. des Crust. ii. 209.—Mari Orientali.

ALBUNIDÆ.

Pedes antici subcheliformes. Maxillipedes externi subpediformes, exognatho instructi.

BLEPHAROPODA, Randall. (Journ. Acad. Nat. Sci. Philada., 1839, viii. 131.) =*Albunhippa*, M.-Edw., 1841. =*Abrote*, Philippi, 1857. Antennæ sat longæ, aciculo nullo. Oculi cylindrici graciles.

Typus, B. occidentalis, Randall; loc. cit. viii. p. 131, pl. vi.—California.

B. spinosa. *Albunhippa spinosa*, M.-Edw. et Lucas; Arch. du Mus. d'Hist. Nat. ii. 477, pl. xxviii. f. 1-13.—Peru.

B. spinimana. *Abrote spinimana*, Philippi; Arch. f. Naturg. xxiii. i. 124, pl. viii.—Chili.

ALBUNÆA, Fabr., M.-Edw. (Hist. Nat. des Crust. ii. 202). Antennæ aciculo instructæ prælongo. Oculi laminati, angusto-triangulares. Maxillipedum externorum carpi angulus superior parum productus.

Typus, A. symnista, Fabr.; M.-Edw.; Hist. Nat. des Crust., ii. 203.—Mari Orientali.

A. Lucasii, De Saussure; Rev. et Mag. Zool. ser. 2dæ, v. 367, pl. xii. f. 4.—California.

A. oxyophthalma; Leach, White; Brit. Mus. Cat., 1847, p. 57.—Ins. Antillarum.

A. speciosa, Dana; loc. cit. i. 405, pl. xxv. f. 6.—Ins. Hawaii.

A. Guerini, Lucas; Rev. et Mag. Zool., ser. 2dæ, v. 45.—Algeria.

A. Paretii, Guerin; Rev. et Mag. Zool., ser. 2dæ, v. 47.—Ins. Antillarum?

A. Gibbesi, Stm.—Florida.

LEPIDOPA, nov. gen. Antennæ aciculo instructæ brevissimo. Oculi squamiformes, vix longiores quam latiores. Maxillipedum ext. carpi angulus superior longe productus.

Typus, L. scutellata. *Albunæa scutellata*, Fabr., M.-Edw.; Hist. des Crust. ii. 204.—Ins. Antillarum.

L. venusta, Stm.—Ins. Antillarum.

SYNOPSIS LITHODIDEORUM.

A. Corpus convexum, habitu Maioideorum.

LITHODES, Latr., M.-Edw. (Hist. Nat. des Crust., ii. 184). Abdominis extremitates et partes laterales scutellis approximatis induratæ; pars media mollis, verrucis disjunctis armata. Pedes sepius longi.

Typus, L. maia, Leach. *Cancer maia*, Lin. *L. arctica*, M. Edw.; Hist. Nat. des Crust., ii. 186.—Mari Atlantico Boreali.

[Dec.

L. antarcticus, Humbr. et Jacq.; Voy. au Pole Sud, Inv. pl. vii.—Fuegia.

L. camtschaticus, Tiles., De Haan; Fauna Japonica, Crust. 217, pl. xlvii.—Mari Ochotzskiensi.

L. spinosissimus, Brandt; Bulletin phys.-mathém. de l'Acad. de St. Petersbourg, vii. 172.—Mari Pacifico Boreali.

L. brevipes, M.-Edw. et Lucas; Arch. du Mus. d'Hist. Nat. ii. 463, pl. xxiv–xxvii. *Paralithodes brevipes*, Brandt.—Kamtschatka.

ECHIDNOCERUS, White. Proc. Zool. Soc. London, 1848, p. 47). *Lopholithodes*, Brandt. *Ctenorhinus*, Gibbons. Abdomen scutis quinque-seriatis approximatis induratum. Antennarum aciculum triangulatum, superficie margineque spinosum. Pedes brevissimi.

Typus, E. cibarius, White; P. Z. S. 1848, p. 47; Annulosa, pl. ii. iii. *Lopholithodes Mandtii*, Brandt; Bulletin phys.-math. de l'Acad. de St. Petersbourg, vii. 174.—Sitka.

E. setimanus, Stm.; Crust. et Echin. Pac. Coast of N. Am., p. 37. *Ctenorhinus setimanus*, Gibbons; Proc. Cal. Acad. Nat. Sci., i. 48. California.

E. foraminatus, Stm.—California.

PARALOMIS, White. (Proc. Zool. Soc. London, xxiv. 134). Abdomen scutis quinque-seriatis approximatis induratum. Antennarum aciculum margine spinosum. Pedes mediocres.

Typus, P. granulosus, White; l. c. *Lithodes granulosus*, Humbr. et Jacq.; Voy. au Pole Sud. Inv., pl. viii. f. 15. Mari Antarctico.

P. verrucosus. *Lithodes verrucosus*, Dana; loc. cit. 128, pl. xxvi. f. 16.—Fuegia.

RHINOLITHODES, Brandt. (Bulletin de l'Acad. vii. 174.) Abdomen scutis triseriatis obessum. Antennarum aciculum margine spinosum. Pedes mediocres.

Typus, R. Wosnessenskii, Brandt; l. c.—Sitka.

ACANTHOLITHUS, nov. gen. Abdomen scutis multiseriatis obsessum. Antennarum aciculum truncatum, 3-4-spinigerum. Pedes mediocres.

Typus, A. hystrix. *Lithodes hystrix*, De Haan; Fauna Japonica, Crust. 218, pl. xlviii.—Japonia.

PHYLLOLITHODES, Brandt. (Bulletin phys.-mathem. de l'Acad. de St. Pétersb. vii. 174.) *Petalocerus*, White. Carapax puteis profundis excavatus. Abdomen flexile, scutis quinque-seriatis induratum; scutis paullo imbricatis, sed bene disjunctis, interstitiis cutaneis. Antennarum aciculum flabelliforme, in laminis tres divisum. Pedes sat breves.

Typus, P. papillosus, Brandt; Bulletin, vii. 174. *Petalocerus Bellianus*, White; Proc. Zool. Soc. Lond. 1856, xxiv. 134, pl. xlii. California.

CRYPTOLITHODES, Brandt. (Bulletin phys.-math. de l'Acad. de St. Pétersb. vii. 175.) Carapax marginibus dilatatus, pedes totos celans. Rostrum laminatum deflexum. Antennarum aciculum laminiforme simplici. Abdomen induratum, scutellis triseriatis approximatis.

Typus, C. typicus, Brandt; Bulletin, vii. 175. Stimpson; Crust. et Echin. Pacific Coast of N. America, p. 32. Bost. Jour. Nat. Hist. vi. pl. xx. —California.

C. sitchensis, Brandt; Malanges Biologiques tirés du Bulletin phys.-mathem. de l'Acad. Imp. des Sciences de St. Pétersb., i. 654.—Sitka.

B. Corpus depressum, habitu Porcellanideorum.

LOMIS, M. Edwards, (Hist. Nat. des Crust. ii. 187.) Carapax rotundatus, rostro rudimentari. Abdomen sat induratum lamellatum.

Typus, L. hirta, M. Edw.; Hist. Nat. des Crust. ii. 188. *Porcellana hirta* Lam'k.—Australia.

DERMATURUS, Brandt. (Melanges Biologiques, i. 57.) Abdomen molle, crassum, segmentis primo, ultimo penultimoque scutellis protectis. Maxillipedum externorum articuli ultimus penultimusque non dilatati.

Typus, D. Mandtii, Brandt; Mel. Biolo. i. 57.—Ins. St. Pauli.

HAPALOGASTER, Brandt. (Melanges Biologiques, i. 58.) Abdomen ei *Dermaturi* simile. Antennarum aciculum laminatum, sublanceolatum. Maxillipedum ext. articuli ultimus penultimusque intus dilatati.

Typus, H. Mertensi, Brandt; Mel. Biol. i. 58.—Sitka.

H. dentatus. *Lomis dentata*, De Haan; loc. cit. 219. pl. xlviii. f. 3. —Japonia.

H. cavicauda, Stm. California.

SYNOPSIS PAGURIDEORUM.

CENOBITIDÆ.

BIRGUS, Leach, M. Edw.; Hist. Nat. des Crust. ii. 244.) Abdomen rectum, laminis calcareis induratum.

Typus, B. latro, Leach, M. Edw.; Hist. Nat. des Crust. ii. 246; Reg. Anim. Crust., pl. xliii. f. 1. *Cancer latro*, Herbst.—Mari Orientali.

CENOBITA, Latreille, M. Edw. (Hist. Nat. des Crust. ii. 238.) Abdomen molle, in cochleam retortum.

Typus, C. clypeata, Latreille, Encyc., pl. ccci. f. 1. M. Edw.; Hist. Nat. des Crust., ii. 239.—Mari Orientali.

C. diogenes, Latr., M. Edw.; Hist. Nat. des Crust. ii. 240, pl. xxii. f. 11-13.—Ins. Antillarum.

C. carnescens, Dana; loc. cit. i. 472, pl. xxx. f. 3.—Mari Pacifico.

C. rugosa, M. Edw.; Hist. Nat. des Crust. ii. 241. De Haan; l. c., p. 212. Dana; loc. cit. i. 471, pl. xxx. f. 1. *C. clypeata*, Owen; in Beechey's Voy. Zool.—Mari Pacifico.

C. brunnea, Dana; loc. cit. i. 470, pl. xxix. f. 10.—Mari Pacifico.

C. Olivieri, Owen; Beechey's Voy. Zool. p. 84.—Mari Pacifico.

C. compressa, M. Edw.; Hist. Nat. des Crust. ii. 241. De Haan; l. c. p. 241.—Mari Orientali.

C. spinosa, M. Edw.; Hist Nat. des Crust. ii. 242.—Mari Orientali.

C. perlata, M. Edw.; Hist. Nat. des Crust. ii. 242. Reg. Anim. Crust., pl. xliv. f. 1. De Haan: l. c. p. 213.—Mari Pacifico.

C. purpurea et cavipes, infra.

PAGURIDÆ.

A. Maxillipedes externi basi approximati, coxis valde dilatatis, contiguis.

a. Abdomen symmetricum.

CANCELLUS, M. Edw. (Hist. Nat des Crust. ii. 243.)

Typus, C. typus, M. Edw.; Ann. des Sc. Nat. ser. 2da Zool. vi. pl. xiv. f. 3.

b. Abdomen asymmetricum.

1. Abdomen maris appendicibus genitalibus carens. Pedes 4ti paris cheliformes.

DIOGENES, Dana, (U. S. Expl. Exp., Crust. i. 438.) Annulum ophthalmicum apertum, rostriferum. Antennarum aciculum basi latum, interdum bifidum; flagellum ciliatum. Chelipedes inæquales, (sinister major,) manûs commisura marginali; digitis obliquis, apicibus calcareis acuminatis. Pedum 2di 3tiique paris dactyli longi.

Typus, D. miles, Dana; loc. cit. i. 439, pl. xxvii. f. 9. *Pagurus miles*, Fabr., M. Edw.; Hist. Nat. des Crust. ii. 235.—Mari Orientali.

D. custos, Dana; loc. cit. i. 439, pl. xxvii. f. 10. *Pagurus custos*, Fabr., M. Edw.; Hist. Nat. des Crust. ii. 236.—Mari Orientali.

D. diaphanus. *Pagurus diaphanus*, Fabr., M. Edw.; Hist. Nat. des Crust. ii. 236.—Mari Atlantico.

[Dec.

D. spinifrons. *Pagurus spinifrons*, De Haan; Fauna Jap. Crust. 212, pl. xlix. f. 6.—Japonia Australi.

D. Edwardsi. *Pagurus Edwardsii*, De Haan; l. c., p. 211, pl. i. f. 1.—Japonia Australi.

D. arenarius. *Pagurus arenarius*, Lucas; Expl. Alger. Cr. pl. iii. f. 7.—Algeria.

D. brevirostris et penicillatus, infra.

?*Pagurus pugilator*, Roux; Crust. de la Medit. pl. xiv. f. 3. Mari Medit.

PETROCHIRUS, nov. gen. *Paguro affinis.* Frons medio obtusa. Annulum ophthalmicum apertum, bracteoliferum. Oculi crassi, squamularum basalium apicibus gracilibus. Chelipedes subæquales, (dexter major,) dissimiles; manûs commisuris marginalibus; digitis verticalibus; manûs dextræ marginibus obtusis, apicibus digitorum calcareis; manûs sinistræ marginibus acutis, apicibus corneis. Pedum 2di. 3tiique paris dactyli contorti.

Typus, P. granulatus. *Pagurus granulatus*, Oliv., M. Edw.; Hist. Nat. des Crust. ii. 225.—Mari Atlantico Occidentali.

PAGURUS, Fabr., Dana. (U. S. Expl. Exped., Crust. i. 449.) Frons medio recta. Annulum ophthalmicum apertum, bracteoliferum. Oculi plus minusve crassi, squamularum basalium apicibus latis. Antennarum aciculum breve sat robustum, flagellum longum, nudum. Chelipedes inæquales, (sinister major,) manûs commisuris marginalibus; digitis verticalibus, apicibus corneis, subexcavatis.

Typus, P. punctulatus, Oliv., M. Edw.; Hist. Nat. des Crust. ii. 222. Dana; loc. cit. i. 451, pl. xxviii. f. 4.—Mari Orientali.

P. spinimanus, M. Edw.; Ann. des Sc. Nat. ser. 3tiæ v. 61.—Mari Pacifico.

P. affinis, M. Edw.; Hist. Nat. des Crust. ii. 224.—Ceylania.

P. guttatus, Oliv., M. Edw.; Hist. Nat. des Crust. ii. 223. Quoy et Gaimard; Voy. Uranie, pl. lxxix. f. 3. Dana; loc. cit. i. 451, pl. xxviii. f. 3. —Mari Pacifico.

P. setifer, M. Edw.; Hist. Nat. des Crust. ii. 225. De Haan; l. c. p. 209.—Mari Orientali.

P. euopsis, Dana; loc. cit. i. 452, pl. xxviii. f. 6.—Mari Pacifico.

P. fabimanus, Dana; loc. cit. i. 454, pl. xxviii. f. 7.—Mari Pacifico.

P. scabrimanus, Dana; loc. cit., i. 455, pl. xxviii. f. 8.—Mari Orientali.

P. difformis, M. Edw.; Hist. Nat. des Crust. ii. 222. Dana; l. c. i. 449.—Mari Orientali.

P. asperus, Berthold; Gottingische Gel. Anz., 1845; iii. Nach. p. 45.— —Mari Sinensi.

P. pedunculatus, (Herbst,) Owen; in Beechey's Voy. Zool., p. 83.— Mari Pacifico.

P. carinatus, Randall; Jour. Acad. Nat. Sci. Philad. viii. 133.—Ins. Hawaii.

P. asper, De Haan; (non M. Edw.) loc. cit. 208, pl. xlix. f. 4. Dana; l. c., i. 450.—Mari Orientali.

P. cavipes, White; Ann. Mag. Nat. Hist. i. 224.—Australia.

P. venosus, M. Edw.; Ann. des Sci. Nat., ser. 3tiæ v. 61.—Ins. Antillarum.

P. sinistripes, Stm.—Panama.

P. callidus, Roux, M. Edw.; Hist. Nat. des Crust. ii. 220.—Mari Mediterraneo.

P. striatus, Latr., M. Edw.; Hist. Nat. des Crust. ii. 218.—Mari Atlantico Orientali.

P. imbricatus, M. Edw.; Ann. des Sc. Nat. ser. 3tiæ, 1848, v. 61.— "Ruffles Bay."

P. strigimanus, White; Ann. Mag. Nat. Hist., 1848, i. 224.—Tasmania.

P. ornatus, Roux; Crust. Medit. pl. xlvii.—Mari Medit.

P. scutellatus, M. Edw.; Ann. des Sc. Nat., ser. 3tiæ, 1848, v. 61.—Africa Orientali.

P. gemmatus, M. Edw.; Ann. des. Sc. Nat., ser. 3tiæ, 1848, v. 61.—Ins. "Marquesas."

P. impressus, De Haan; loc. cit. 407, pl. xlix. f, 3.—Japonia.

P. sculptipes et platythorax, infra.

?Pagurus timidus, Roux; Crust. de la Medit. pl. xxiv. f. 6.—Mari Medit.

ANICULUS, Dana. (U. S. Expl. Exped., Crust. i. 460.) Frons medio acuta. Annulum ophthalmicum vix apertum, sed bracteoliferum. Antennæ graciles, aciculo brevi robusto, flagello nudo. Chelipedes perbreves æquales, manûs commisuris verticalibus, sed marginalibus; digitis verticalibus apicibus excavatis corneis.

Typus, A. typicus, Dana; loc. cit. i. 461, pl. xxix. f. 1. *Pagurus aniculus*, Fabr.; Suppl. 411.—Mari Orientali.

A. ursus. *Pagurus ursus*, Olivier; Encyc. Meth. viii. 640.—Australia.

A. elegans, Stm.—Panama.

?Pagurus annulipes, M. Edw.; Ann. des Sc. Nat. ser. 3tiæ, 1848, Zool. v. 60.—Papua.

CALCINUS, Dana. (U. S. Expl. Exped., Crust. i. 456.) Frons medio acuta. Annulum ophthalmicum celatum. Antennarum aciculum breve; flagellum nudum. Chelipedes inæquales, (sinister major,) manûs commisuris verticalibus sed fere marginalibus; digitis verticalibus, apicibus calcareis instar cochlearis excavatis. Pedum 2di. 3tiique paris dactyli breves.

Typus, C. tibicen, Dana; loc. cit. i. 457. *Pagurus tibicen*, (Herbst,) Latr., M. Edw.; Hist. Nat. des Crust. ii. 229. *P. levimanus*, Randall.—Mari Pacifico.

C. chilensis. *Pagurus chilensis*, M. Edw.; Hist. Nat. des. Crust. ii. 230, pl. xxii. f. 9. Nicolet; in Gay's Hist. de Chile, Zool. iii. 191.—Chili.

C. obscurus, Stm.—Panama.

C. lividus. *Pagurus lividus*, M. Edw.; Ann. des Sc. Nat., ser. 3tiæ, 1848, Zool. v. 63.—Mari Orientali.

C. sulcatus. *Pagurus sulcatus*, M. Edw.; Hist. Nat. des Crust. ii. 230.—Ins. Antillarum.

C. Gaimardii, Dana; l. c. i. 457, pl. xxviii. f. 9. *Pagurus Gaimardii*, M. Edw.; Ann. des Sc. Nat., ser. 3tiæ, 1848, Zool. v. 63.—Mari Pacifico Occidentali.

C. elegans, Dana; loc. cit. i. 458. *Pagurus elegans*, M. Edw.; Hist. Nat. des Crust. ii. 229. *P. pictus*, Owen. *P. decorus*, Randall.—Mari Pacifico.

C. latens, Dana; l. c. i. 459, pl. xxviii. f. 11. *Pagurus latens*, Randall.—Mari Pacifico.

C. cristimanus. *Pagurus cristimanus*, M. Edw.; Ann. des Sc. Nat., ser. 3tiæ, 1848, Zool. v. 63.

?Pagurus bimaculatus, De Haan; loc. cit. 210, pl. 1, f. 4.—Japonia Australi.

CLIBANARIUS, Dana. (U. S. Expl. Exped. Crust. i. 461.) Frons medio acuta. Annulum ophthalmicum celatum. Oculi longi. Antennarum aciculum robustum. Chelipedes similes, subæquales, manûs commisuris verticalibus medianis, non marginalibus; digitis horizontalibus, apicibus corneis excavatis.

Typus, C vulgaris, Dana; l. c. i. 462. *Pagurus clibanarius*, (Herbst.) Latr., M. Edw.; Hist. Nat. des Crust. ii. 227.—Mari Orientali.

C. oculatus. *Pagurus oculatus*, Fabr., M. Edw.; His. Nat. des Crust. ii. 226.—Gallia.

C. crassimanus. *Pagurus crassimanus*, M. Edw.; Hist. Nat. des Crust. ii. 227.—Mari Pacifico.

C. tuberculosus. *Pagurus tuberculosus*. M. Edw.; Hist. Nat. des Crust. ii. 229.—Ins. Antillarum.

C. tricolor. *Pagurus tricolor*, Gibbes; Proc. Am. Assoc., 1850, p. 189.—Florida.

C. lineatus, Dana; loc. cit. i. 462, pl. xxix. f. 2. *Pagurus lineatus*, M. Edw.; Ann. des Sc. Nat. ser. 3tiæ, 1848, v. 62.—Mari Pacifico.

C. striolatus, Dana; loc. cit. i. 463, pl. xxix. f. 3.—Mari Pacifico.

C. nigritarsis. *Pugurus nigritarsis*, Lucas; Expl. Alger. Crust. pl. iii f. 4.—Algeria.

C. vittatus. *Pagurus vittatus*, Bosc.; Hist. des Crust. ii. 8, pl. xii. Gibbes; loc. cit. 189.—Carolina.

C. panamensis, Stm.—Panama.

C. sclopetarius. *Cancer sclopetarius*, Herbst; Naturg. d. Krabben und Krebse, ii. 23, pl. xxiii. f. 3.—Ins. Antillarum.

C. longitarsis, Dana; loc. cit. i. 464. *Pagurus longitarsis*, De Haan; l. c. 211, pl. l. f. 3.—Mari Orientali.

C. inequalis. *Pagurus inequalis*, De Haan; loc. cit. 210, pl. l. f. 2.—Japonia Australi.

C. symmetricus, Dana; l. c. i. 464. *Pagurus symmetricus*, Randall; loc. cit. viii. 133.—Ins. Hawaiensium.

C. tæniatus. *Pagurus tæniatus*, M. Edw.; Ann. des Sc. Nat. 3tiæ ser. 1848, v. 62.—Mari Pacifico.

C. cruentatus. *Pagurus cruentatus*, M. Edw.; Ann. des Sc. Nat., ser. 3tiæ, 1848, v. 62.—Nova Zelandia.

C. aculeatus. *Pagurus aculeatus*, M. Edw.; Ann. des Sc. Nat., ser. 3tiæ, 1848, v. 62.—Australia.

C. elongatus. *Pagurus elongatus*, M. Edw.; Ann. des Sc. Nat., ser. 2tiæ, 1848, v. 62.—Mari Pacifico.

C. asper. *Pagurus asper*, M. Edw.; Ann. des Sc. Nat., ser. 3tiæ, 1848, v. 63.—Mari Orientali.

C. æquabilis, Dana; loc. cit. i. 464, pl. xxix. f. 4.—Ins. Madeiræ.

C. zebra, Dana; l. c. i. 456, pl. xxix. f. 5.—Ins. Hawaii.

C. virescens, Dana; l. c. i. 466. *Pagurus virescens*, Krauss; Sudafr. Crust. 56, pl. iv. f. 3.—Africa Austr.

C. brasiliensis, Dana, l. c. i. 467, pl. xxix. f. 7.—Brasilia.

C. Antillensis, Stm.—Ins. Antillarum.

C. corallinus. *Pagurus corallinus*, M. Edw.; Ann. des Sc. Nat., ser. 3tiæ, 1848, v. 63.—Mari Pacifico.

C. obesimanus, (*Pagurus*) Dana; Proc. Acad. Nat. Sc. Philad., 1851, v. 271.—Mari Pacifico.

C. humilis, Dana; U. S. Expl. Expd., Crust. i. 469, pl. xxix. f. 9.—Mari Orientali.

C. pacificus, infra.

? *Pagurus Labillardieri*, Savigny; Egypt; Crust. pl. ix. f. 2.—Egypt.

ISOCHELES, nov. gen. Carapax antrorsum angustatus, lateribus rectis. Annulum ophthalmicum omnino celatum. Oculi elongato-cylindrici, basi contigui, corneis non dilatatis. Antennæ perbreves; aciculo robusto; flagello bene ciliato. Chelipedes æquales; manu horizontali, commisuris marginalibus, digitis acuminatis. Pedum 2di. 3tiique paris dactyli contorti. Abdominis maris scutellæ et appendices segmentorum validæ, longe hirsutæ.

Typus, I. æquimanus. *Bernhardus æquimanus*, Dana; loc. cit. i. 445, pl. xxvii. f. 6.

I. Wurdemanni, Stm.—Sinu Mexicano.

2. Abdomen maris appendicibus genitalibus præditum. Pedes 4ti paris non cheliformes.

PAGURISTES, Dana. (U. S. Expl. Expd. Crust. i. 436). Oculi longi. Antennæ breves, aciculo robusto. Chelipedes similes, plerumque subæquales, manûs commisuris verticalibus, digitis horizontalibus. Abdomen maris paribus duabus appendicium genitalium præditum. Abdomen fœminæ pari una appendicium ad basin præditum, et sacco ovifero instructum.

Typus, P. hirtus, Dana; loc. cit. i. 437, pl. xxviii. f. 2.—Chili.

P. tomentosus, *Pagurus tomentosus*, M. Edw.; Ann. des Sc. Nat., ser. 3tiæ, 1848, v. 64.—Chili?

P. turgidus. *Clibanarius turgidus*, Stm.; Crust. et Echin. Pacific Coast of N. Am., p. 44. Bost. Jour. Nat. Hist. vi. pl. xxi. f. 1.—Oregonia.

P. Weddelli. *Pagurus Weddelli*, M. Edw.; Ann. des Sc. Nat. ser. 3tiæ, 1848, v. 64.—Peru.

P. maculatus. *Pagurus maculatus*, Risso; Roux; Crust. Medit., pl. xxiv. f. 1–4. M. Edw.; Hist. Nat. des Crust. ii. 231.—Mari Mediterraneo.

P. Gamianus. *Pagurus Gamianus*, M. Edw.; Hist. Nat. des Crust. ii. 235.—Promontorio Bonæ Spei.

P. setosus. *Pagurus setosus*, M. Edw.; Ann. des Sc. Nat. ser. 3tiæ, 1848, v. 64.—Papua.

P. gonagrus. *Pagurus gonagrus*, M. Edw.; Hist. Nat. des Crust. ii. 233. —China.

P. pilosus. *Pagurus pilosus*, M. Edw.; Ann. des Sc. Nat. ser. 2dæ, vi. 282, pl. xiv. f. 1.—Nova Zelandia.

P. frontalis. *Pagurus frontalis*, M. Edw.; Ann. des Sc. Nat. ser. 3dæ, vi. 283, pl. xiii. f. 3.—Australia.

P. longirostris, Dana; loc. cit.; i. 436, pl. xxviii. f. 1.—Mari Orientali.

P. brevicornis. *Pagurus brevicornis*, Guerin.

P. depressus, Stm.—Ins. Antillarum.

P. digitalis et seminudus, infra.

b. Maxillipedes externi basi valde remoti, coxis quam articulis secundis vix majoribus. Pedes 4ti vix cheliformes.

Spiropagurus, nov. gen. Carapax depressus, post suturam transversam membranaceus; suturis cardiaco-branchialibus vitta cornea lineari corroboratis. Oculi breves, corneis dilatatis. Antennæ grandes, aciculo e basi gracili. Virgula (appendix genitalis coxæ pedum 5ti paris,) sinistra longe exserta, spiralis, compressa, membranacea; margine superiore vitta cornea firmata. Abdominis segmentum ultimum bifidum, furcis serratis.

Typus, S. spiriger. *Pagurus spiriger*, De Haan; loc. cit. 206, pl. xlix. f. 2.—Japonia.

S. dispar, Stm.—Ins. Antillarum.

Eupagurus, Brandt, restrictum. (Vide Middendorffii Sibirische Reise, Zool. i. 105). *Bernhardus*, Dana. Frons medio acuta. Annulum ophthalmicum apertum, non bracteo liferum. Antennarum aciculum elongatum, e basi gracile; flagellum longum. Maxillipedes externi sat grandes. Chelipedes disimiles, inæquales, (dexter major,) manus commisuris marginalibus, digitis horizontalibus.

Typus, E. bernhardus. *Pagurus bernhardus*, (Lin.) Fabr., M. Edw.; Hist. Nat. des Crust. ii. 215. *Pagurus streblonyx* Leach. *Bernhardus streblonyx*, Dana.—Maribus Borealibus.

E. ochotensis, Brandt; Sibirische Reise, Zool. i. 108. *Bernhardus armatus*, Dana; loc. cit. i. 442, pl. xxvii. f. 2.—Mari Pacifico Boreali.

E. chiroacanthus. *Pagurus chiroacanthus*, Liljeborg; Ofvers. af Kongl. Vet. Akad. Förhandl. xii. 118.—Skandinavia.

E. Dilwyni. *Pagurus Dilwyni*, Bate; Ann. Mag. Nat. Hist. 1851, vii. 320. —Europa.

E. Forbesii, *Pagurus Forbesii*, Bell; Brit. Crust. p. 186.—Mari Brittanico.

E. sculptimanus. *Pagurus sculptimanus*, Lucas; Expl. Alger. pl. iii.— Algeria.

E. lævis. *Pagurus lævis*, Thompson; Bell; Brit. Crust. p. 184.—Europa.

E. Hyndmanni, Thompson; Bell; Brit. Crust. p. 182.—Mari Brittanico.

E. ulidianus. *Pagurus ulidianus*, Thompson; Bell; Brit. Crust. 180.— Mari Britannico.

E. spinimanus. *Pagurus spinimanus*, Lucas; Expl. Alger. pl. iii. f. 3. —Algeria.

E. cuanensis. *Pagurus cuanensis*, Thompson; Bell; Brit. Crust. p. 178. —Mari Britannico.

E. Prideauxii. *Pagurus Prideauxii*, Leach; M. Edw.; Hist. Nat. des Crust. ii. 216.—Europa.

E. brevipes. *Pagurus brevipes*, M. Edw.; Ann. des Sc. Nat. ser. 3tiæ, 1848, v. 60.—Islandia.

E. perlatus. *Pagurus perlatus*, M. Edw.; Ann. des Sci. Nat. ser. 3tiæ, 1848, v. 60. *Bernhardus Edwardsii*, Dana; loc. cit. i. 447.—Chili.

E. obesicarpus. *Bernhardus obesocarpus*, Dana; l. c. i. 445, pl. xxvii. f. 5.—Chili?

E. Gayi. *Pagurus Gayi*, Nicolet; in Gayi Chile, Zool. iii. 190, Crust. pl. i. f. 6.—Chili.

E. villosus. *Pagurus villosus*, Nic.; in Gayi Chile, Zool. iii. 188, Crust. pl. i. f. 5.—Chili.

E. forceps. *Pagurus forceps*, M. Edw.; Ann. des Sc. Nat. ser. 2dæ, vi. pl. xiii. f. 5. Hist. Nat. des Crust. ii. 221; Nicolet; in Gayi Hist. de Chile, Zool. iii. 189.—Chili.

E. longicarpus. *Pagurus longicarpus*, Say; Jour. Acad. Nat. Sci. Philada. i. 165.—Virginia.

E. Mertensii, Brandt; Sibir. Reise, Zool. 112.—Mari Pacifico Boreali.

E. splendescens. *Pagurus splendescens*, Owen in Beechey's Voy. Zool. 81, pl. xxv. f. 1.—Mari Pacifico Boreali.

E. angulatus. *Pagurus angulatus*, Risso; M. Edw.; Hist. Nat. des Crust. ii. 217.—Mari Mediterraneo.

E. meticulosus. *Pagurus meticulosus*, Roux; Crust. de la Medit. pl. xlii.—Mari Mediterraneo.

E. alatus. *Pagurus alatus*, Fabr.; Suppl. 413.—Islandia.

E. pubescens. *Pagurus pubescens*, Kroyer; Naturh. Tidsskrift, ii. 251. —Maribus Septentrionalibus.

E. Kroyeri, Stm.—Maribus Septentrionalibus.

E. hirsutiusculus, Stm.; Bost. Jour. Nat. Hist. vi. *Bernhardus hirsutiusculus*, Dana; loc. cit. i. 443, pl. xxvii. f. 3.—Oregonia; Japonia Boreali.

E. Samuelis, Stm.; Crust. et. Echin. Pacific Coast of N. Am., p. 42.— Mari Pacifico Boreali.

E. granosimanus, Stm.—California.

E. scabriculus. *Bernhardus scabriculus*, Dana; Proc. Acad. Nat. Sci. Philada. Jan. 1852. *B. pubescens*, Dana; U. S. Expl. Exped. Crust. i. 444, pl. xxvii. f. 4.—America Australi?

E. Middendorffii, Brandt; Sibir. Reise, Zool. i. 108, pl. v. f. 1.—Mari Pacifico Boreali.

E. conformis. *Pagurus conformis*, De Haan; loc. cit. 206.—Japonia.

E. cristatus. *Pagurus cristatus*, M. Edw.; Hist. Nat. des Crust. ii. 218. —Nova Zelandia.

E. Novi-Zelandiæ. *Bernhardus Novi-Zelandiæ*, Dana; loc. cit. i. 440, pl. xxvii. f. 1.—Novi-Zelandia.

E. tenuimanus. *Bernhardus tenuimanus*, Dana; loc. cit. i. 447, pl. xxvii. f. 7.—Oregonia.

E. criniticornis. *Bernhardus criniticornis*, Dana; loc. cit. i. 448, pl. xxvii. f. 8.—Brasilia.

E. operculatus, Stm.—Florida.

E. brevidactylus, Stm.—Ins. Antillarum.

E. pollicaris. *Pagurus pollicaris*, Say; Jour. Acad. Nat. Sci. Philada. i. 162.—Virginia.

E. comptus. *Pagurus comptus*, White; Ann. Mag. Hist. i. 224.—Ins. "Falkland."

E. megalops, gracilipes, constans, pectinatus, trigonocheirus, pilosipes, angustus, Japonicus, sinuatus, tricarinatus, et acantholepis, infra.

E. rubrovittatus. *Pagurus rubrovittatus*, Lucas; Expl. Alger.—Algeria.
? *Pagurus lanuginosus*, De Haan; loc. cit. 207, pl. xlix. f. 5.—Japonia.
? *Pagurus Gaudichaudi*, M. Edw.; Hist. Nat. des Crust. ii. 188.—Chili.
? *Pagurus pictus*, M. Edw.; Hist. Nat. des Crust. ii. 220.—Gallia.
? *Pagurus pustulatus*, M. Edw.; Ann. des. Sc. Nat. ser. 3tiæ, 1848, v. 60.—Gorea.

ÆGLEIDEA. Genus unicum ÆGLEA;—conf. Dana; U. S. Expl. Exped., i. 476.

SYNOPSIS GALATHEIDEORUM.

GALATHEA, Fabr., Desmarest. (Consid. sur les Crust. p. 188.) Maxillipedes externi mediocres, articulis ultimo penultimoque non dilatatis. Frons rostrata, rostro triangulari.
Typus, G. strigosa, Fabr., M. Edw.; Hist. Nat. des Crust. ii. 273. *Cancer strigosus*, Lin.—Europa.
G. squamifera, Leach, M. Edw.; Hist. Nat. des Crust. ii. 275. *Cancer squamifer*, Montagu. *G. Fabricii*, Leach.—Europa.
G. nexa, Embleton, Bell; Brit. Crust. p. 204.—Mari Britanico.
G. Andrewsi, Kinahan; Nat. Hist. Review, iv. 228, pl. xvi. f. 8.—Mari Hibernico.
G. tridentata, Esmark; Forhandl. ved de Skandinaviske Naturforskeres synvende möde, i. 239.—Skandinavia.
G. intermedia, Liljeb.; Ofvers. af k. Vet.-Akad. Förh. 1851, p. 21.—Skandinavia.
G. serricornis, Lovén; Ofvers. af k. Vet.-Akad. Förh. 1852, p. 22.—Skandinavia.
G. monodon, M. Edw.; Hist. Nat. des Crust. ii. 276.—Chili.
G. latirostris, Dana; loc. cit. i. 480, pl. xxx. f. 8.—Mari Pacifico.
G. spinosirostris, Dana; l. c. i. 480, pl. xxx. f. 9.—Ins. Hawaiensium.
G. vitiensis, Dana; l. c. i. 481, pl. xxx, f. 10.—Mari Pacifico.
G. longirostris, Dana; l. c. i. 482, pl. xxx, f. 11.—Mari Pacifico.
G. elegans; White; Voy Samarang, Crust. pl. xii. f. 7.—Ins. Phillipinis.
G. integrirostris, Dana; l. c. i. 482, pl. xxx, f. 12.—Ins. Hawaiensium.
G. Australiensis, labidolepta, orientalis, acanthomera, pubescens, subsquamata et grandirostris, infra.

MUNIDA, Leach; Desmarest. (Consid. sur les Crust. p. 190.) Maxillipedes externi eis *Galatheæ* similes. Frons tricuspis.
Typus, M. bamffia, White; Cat. Brit. Crust. 1850, p. 30. *Astacus Bamffius*, Pennant. *Galathea rugosa*, Fabr., M. Edw. *G. longipeda*, Lam'k. *Munida rugosa*, Leach. *Munida Rondeletii*, Bell.—Mari Britanico.
M. subrugosa, Dana; loc. cit., 1, 479, pl. xxx. f. 7. *Galathea subrugosa*, White.—Mari Antarctico.
M. Japonica, infra.

GRIMOTHEA, Leach, M. Edw. (Hist. Nat. des Crust. ii. 277.) Maxillipedes externi elongati, articulis ultimo penultimoque dilatatis.
Typus, G. gregaria, Leach; M. Edw.; Hist. Nat. des Crust. ii. 277. *Galathea gregaria*, Fabr.—Mari Pacifico.

Index Specierum Expeditionis.

DROMIDEA.

276. DROMIDIA SPONGIOSA, nov. sp. Parva. *Fœminæ* corpus pedesque dense spongioso-tomentosa. Carapax inequalis, puteis in tomentum excavatis. Su-

perficies sub tomento glabra. Frons valde deflexa, triangularis, acuta, longitudinaliter profunde canaliculata, ut videtur bicuspis; marginibus levibus, flexuosis, ad angulos internos orbitarum parce 1-dentatis. Margines orbitarum non dentati, sed angulis externis fissi. Margo antero-lateralis valde convexus, integer. Maxillipedum externorum merus margine antico minus quam in *D. hirsutissima* obliquus. Chelipedes mediocres, superficie læves; manu sat brevi, digitis non deflexis, intus dentatis, basi excepta nudis. Pedes penultimi brevissimi, compressi, extremitatibus truncati; pedes ultimi longiores et graciliores. Abdomen medio obtuse carinatum, utrinque canaliculatum; segmento ultimo magno, quam penultimus dimidia longiore; appendicibus penultimi celatis. Color viventium ruber. Carapacis long. 0·42; lat. 0·52 poll.

Hab.—Prope Promontorium Bonæ Spei; in fundo saxoso prof. 20 org.

277. Dromidia excavata, nov. sp. Descr. fœminæ jun. Pubescens. Carapax valde convexus, æqualis, lateribus fere parallelis; regionibus hepaticis antice excavatis. Frons parva, profunde excavata vel bifida, et dente mediano acuto inferne instructa. Dens supra-orbitalis parvus. Angulus orbitæ externus non dentiformis. Margo antero-lateralis edentatus, angulo hepatico excepto. Sulcus lateralis profundus, dentem lateralem sat validum formans. Maxillipedum externorum merus margine antico obliquus, angulo externo obtusus. Chelipedes parvi, angulosi, superficiebus læves; dente carpi superiore valido; manu edentata extus setis seriatis ornata, digitis compressis quam palma vix brevioribus. Abdomen obtuse carinatum. Pilus superficiei inferioris densus, quasi excavatus, setis longioribus segmenta abdominis et pedum circumdantibus. Carapacis long. 0·37; lat. 0·35 poll.

Hab.—In portu Jacksoni Australiæ; inter spongias e prof. sex org.

278. Cryptodromia coronata, nov. sp. *Maris adulti* carapax latior quam longior, æqualiter convexus, subtiissime asperus, breviter pubescens; sulco distincto. Frons perlata, quinque-dentata, dentibus superocularibus inclusis;—dentibus fere æqualibus, validis, conicis, subacutis. Dens infra-orbitalis dentes frontales fere æquans. Margo antero-lateralis quinque-dentatus, dente secundo subhepatico; dentibus tertio et quarto validis, bilobatis, lobo antico acuto, postico late rotundato. Pedes nodosi, nodis validis parum numerosis, interstitiis reticulatis. Chelipedes æquales, digitis valde hiantibus, apicibus dentatis; dactylo leviter compresso extus concavo. Pedes ultimi quam penultimi multo longiores. Abdomen latum; segmento ultimo multo latiore quam longiore; segmento penultimo augustiore; tertio quartoque singulo quadrispinosis, spinis brevibus; quinto parce bispinoso. Color luteus, interdum fusco-maculatus. Digiti rosei. Carap. long. 0·525; lat. 0·56.

Hab.—Ad insulas "Bonin;" inter madreporas ad prof. pedum sex.

279. Cryptodromia lateralis. *Dromia lateralis*, Gray; Zool. Misc. p. 40.—In portu "Jackson" Austr.; inter rupes et spongias, prof. 1–6 org.

280. Cryptodromia tuberculata, nov. sp. Carapax latus, lævis, vix pubescens. Frons lata parum prominens, quinque-dentata, dentibus supra-ocularibus inclusis;—dentibus subæqualibus, obtusis, dente mediano solum sat acuto. Margo lateralis quadridentatus, dentibus duobus anticis hepaticis, validis tuberculiformibus, dente primo ab angulo orbitæ sat remoto, dente tertio elongato non prominente, quarto ad sulcum. Regio subhepatica serie arcuata dentium armata, et dentibus duobus ad angulum antero-lateralem areæ buccalis. Chelipedes valide tuberculati, tuberculis conicis, tribus magnis et decem parvis in carpo, 20 ad 25 magnitudine variabilibus in manu plerumque in ejus facie externa. Manus intus dense tomentosa. Digiti maris hiantes, valde compressi. Pedes 2di 3tiique verrucosi v. dentati; carpo superne 4–5 dentato. Abdominis fœminæ segmenta tertium quartum quintumque tuberculata, singulo tuberculis quatuor, in serie transversa; duobus medianis, duobus lateralibus. Abdomen maris minus tuberculatum. ♂ Carap. long. 0·43; lat. 0 52 poll.

Hab.—In freto "Gaspar;" ad insulam "Kikaisima," et in sinu "Kagosima;" litoralis inter lapides.

281.—CRYPTODROMIA TUMIDA, nov. sp. Carapax lævis, breviter pubescens, convexus, regionibus gastrica et hepaticis valde tumidus, post frontem abruptus. Frons ei *C. tuberculatæ* similis, sed dentibus lateralibus quam medianus magis prominentibus. Margo antero-lateralis dentibus tribus parvis æqualibus tuberculiformibus armatus; dente primo ab angulo orbitæ, tertio a sulco laterali,—sat remoto. Regio subhepatica tuberculo uno valido post angulum orbitæ, unoque ad angulum areæ buccalis, ornata. Chelipedes sparsim verrucosi, carpo 3–4 tuberculato; manu superne fere quadri-tuberculata, extus lævi vel obsolete granulata, granulis seriatis; digitis *maris* valde hiantibus, *fœminæ* compressis non hiantibus. Pedes 2di 3tiique forte angulosi, vix verrucosi; carpi margine superiore intus dilatato, valde convexo, lævi. Color luteus; digitis medio roseis. ♂ Carap. long. 0·38; lat. 0·45 poll.

Hab.—In sinu "Fou-kow," insulæ "Ousima."

282. CRYPTODROMIA CANALICULATA, nov. sp. Carapax convexus, pubescens fere hirsutus, inæqualis, juxta margines frontales et antero-laterales canaliculatus, canaliculo fere nudo. Sulcus gastro-cardiaca sat profunda. Frons prominens, dentibus tribus medianis acutis, dentibus supra-ocularibus parvulis. Angulus orbitæ externus acutus. Dens suborbitalis valde prominens. Margo antero-lateralis dentatus, inter orbitam et dentem primum concavus, carinatus; dente primo valido, acuto, secundo mediocre, tertio ad sulcum sito. Regio subhepatica antice concava, area carinis bene circumscripta, angulis dentiformibus. Pedes hirsuti. Chelipedes iis *C. tumidæ* similes, manu sæpius superficie exteriore seriato-granulatus. Pedes 2di 3tiique subverrucosi, carpo superne fere concava. Abdomen læve. ♀ Carap. long. 0·31. lat. 0·36 poll.

Hab.—In freto "Gaspar" et ad insulas "Loo-choo" et "Kikaisima;" inter rupes algosos, littoralis vel sublittoralis.

283. DROMIA RUMPHII, Fabr., M. Edw.; Hist. Nat. des Crust. ii. 174. De Haan; Fauna Japon. Crust. pl. xxxii.—In portu "Hong Kong;" in fundo limoso prof. 4–10 org.

284. PSEUDODROMIA LATENS, nov. sp. Descr. maris (jun.?). Corpus breviter pubescens, marginibus subciliatis. Carapax angustus, elongatus, convexus, lævissimus; antice contractus, post sulcum paullo dilatatus. Margines laterales læves. Frons valde angusta, triangularis, fere rostriformis, apice setosa, obscure tridentata. Dens supra-ocularis fere obsoletus. Orbita extus subtusque absque dentibus. Frons septo inter antennulari disjuncto, hiatu angusto. Chelipedes læves, digitis acute dentatis. Pedes 2di 3tiique læves, unguiculis longis acutis. Abdomen maris longum, extremitate acuminatum. Color pallide fulvus. Carap. long. 0·38; lat. 0·27; pedum 5ti paris long. 0·39 poll.

Hab.—In sinu "Simon's Bay" ad Promontorium Bonæ Spei; fundo arenoso prof. 12 org.

285. PETALOMERA GRANULATA, nov. sp. Carapax modice convexus, sparsim sed valide granulatus. Frontis dens medianus inferior minutus; denes laterales grandes valde prominentes. Dens supra-ocularis parvus. Fissura orbitalis externa clausa. Margo antero-lateralis dentibus tribus parvis inconpicuis inter angulum orbitæ et sulcum lateralem armatus, dente primo subhepatico. Pedes sex antici granulati, quatuor postici læves. Chelipedes cristali, cristis carpi manûsque granulatis, apice tuberculigeris. Digiti breves, non hiantes, extremitatibus corneis in lateribus externis colliculis definitis. Color aurantius, rubro-maculatus. ♂ Carap. long. 0·36; lat. 0·33 poll.

Hab.—In sinu "Kagosima" Japoniæ; fundo conchoso, prof. 20 org.

286. CONCHŒCETES ARTIFICIOSUS. *Cancer artificiosus*, Herbst; Naturg. d. Krab-

ben und Krebse, iii. 54: pl. lviii. f. 5.—In portu "Hong Kong" Sinensi;—in valvis generis *Cytheræ* e fundo conchoso prof. 8–10 org.

RANINIDEA.

287. COSMONOTUS GRAYII, Adams et White; Voy. Samarang, Crust. p. 60; pl. xiii. f. 3.—In mari prope promontorium borealem insulæ Formosæ; e fundo arenoso ad prof. 90 org.

PORCELLANIDEA.

288. PETROLISTHES SPECIOSUS. *Porcellana speciosa*, Dana; U. S. Expl. Exped., Crust. i. 417. pl. xxvi. f. 8.—In portu "Hong Kong," in sinu "Kagosima," et ad insulas "Ousima" et "Bonin;" litoralis, rupicolus, sub lapidibus invenitus.

289. PETROLISTHES PUBESCENS, nov. sp. Corpus pedesque superne pubescentia; margines ciliati. Carapax subovatus, parce longior quam latior; lateribus non cristatis, obtuse rotundatis, spina minuta post orbitam armatis. Frons paullum trilobata; lobo mediano magno, obtuso, prominente; triangulari; lateralibus minutis. Maxillipedum externorum ischium apice externo non productum. Chelipedes superne læves, partim subtiliter spinulosi. Margo carpi anticus 5–6 dentatus, dentibus magnitudine variabilibus, majoribus denticulatis; margo posticus sparsim spinosus. Margo exterior dactyli denticulatus. Pedum ambulatoriorum merus margine superiore spinulosus. Color viventium cæruleo-albus, purpureo-maculatus. ♂ Carapacis long. 0·31; lat. 0·295; manûs majoris long. 0·46; lat. 0·19 poll. Affinis *P. tomentosæ*, (Dana,) sed carapace latiore, magis depresso et æquali; maxillipedibus externis transversim striatis; margine externo manûs et meri ped. amb. toto spinuloso.

Hab.—In sinu "Fu-kow" insulæ "Ousima"; littoralis inter rupes.

290. PETROLISTHES HASTATUS, nov. sp. Carapax depressus, medio lævis, antice et lateraliter transversim striatus; lateribus vix cristatis, post orbitas non spinigeris. Frons bene triangulata, prominens. Maxillipedum externorum ischium apice externo non productum. Chelipedes æqualiter depresso-granulati. Carpus antice 3-4-dentatus, dentibus elongatis parum prominentibus; margine posteriore non spinuloso, sed extus valde producto vel hastigero. Pedum ambulatoriorum merus superne sparsim spinulosus. Color viventium olivaceus, subtiliter albo-maculatus. ♀ Carap. long. 0·47; lat. 0·46 poll.

Hab.—Ad insulas "Ousima" et "Kikaisima"; littoralis in portibus.

291. PETROLISTHES JAPONICUS. *Porcellana Japonica*, De Haan; loc. cit. 199, pl. l, f. 5.—In portu "Simoda" Japoniæ, et ad insulas "Bonin", "Kikaisima" "Amakirrima". Etiam ad oras Sinenses.

292. RAPHIDOPUS CILIATUS, nov. sp. Margines corporis pedumque dense et longe ciliati. Carapax pubescens, leviter areolatus, transversim rugatus, retrorsum utrinque breviter transversim cristata. Margo lateralis valde convexus, post antennam fissus, medio bi-denticulatus. Frontis dentes parvi, medianus prominentior. Antennarum articulus primus valde elongatus; pars mobilis orbita remota. Regiones carapacis latero-inferiores forte striati, striis subdistantibus. Chelipedes grandes, angulares, valde hirsuti; mero quam carpus vix tertia parte breviore, superne aspero, inferne spina longa armato; carpo quam manus tertia parte breviore, superne aspero, medio longitudinaliter uni-costato, costa spinulata; margine carpi anteriore non dilatato, leviter concavo, serrulato; margine carpi posteriore convexo, 5-spinuloso; manu elongato-subtriangulari, superne paullo tricostata, costis asperis; digitis palma longioribus, non hiantibus, intus subtiliter denticulatis, apicibus valde curvatis decussantibus; manûs majoris dactylo superne subcristato, digito immobili intus dente valido mediano armato. Pedes ambulatorii graciles, leviter compressi, mero non dilatato; dactylis longis rectis acutis non unguiculatis. Carapacis long. 0·30; lat. 0·39; manûs majoris long., 0·50 poll.

Hab.—In portu "Hong Kong" Sinensi; fundo limoso prof. sex org.

293. PACHYCHELES PECTINICARPUS, nov. sp. Carapax latus, glaber, medio paullo depressus, lateribus obsolete striatus, sinu posteriore lævi. Lobulæ protogastricæ sat prominentes. Frons parum prominens, pubescens. Chelipedes granulati, non sulcati; granulis magnitudine variabilibus, majoribus interdum subseriatis. Carpus multo latior quam longior, margine antico convexus, dentibus octo parvis æqualibus spiniformibus pectinatus. Manûs majoris digiti hiantes, intus pubescentes. Unicolor, lacteo-flavus. Carap. long. 0·30; lat. 0·345; manûs maj. long. 0·37; lat. 0·225 poll.

294. PACHYCHELES STEVENSII, nov. sp. Carapax late ovatus, non areolatus, antrorsum paullo obsolete granulatus, medio glaber, punctatus, lateribus leviter transversim striatus, sinu posteriore non profundo, late rotundato. Frons sat prominens, subtriangularis, parce pubescens. Chelipedes robusti, granulati; majoris mero transversim striato; carpo lato, margine anteriore tridentato, dentibus prominentibus, truncatis, denticulatis, dente interno bifido; manu granulata, granulis magnis lobulatis, valde prominentibus; digitis non hiantibus; digito immobili triangulato, intus basi parce pubescente. Chelipedis minoris carpus antice convexus, prominens, leviter tridentatus; manus longitudinaliter bisulcata; digiti non tomentosi. Pedes ambulatorii sparsim setosi, setis brevibus robustis; dactylis robustis, unguiculis multo curvatis. ♀ Carap. long. 0·50; lat. 0·525; manûs maj. long. 0·64; lat. 0·36 poll.

Hab.—Ad oras occidentales insulæ "Jesso," Japoniæ.

295. PORCELLANA ORNATA, nov. sp. Carapax subovatus, antice areolatus, lobulis protogastricis et hepaticis prominentibus. Margines laterales cristati, vix denticulati. Orbita in margine superiore profunde excavata. Regio frontalis profunde canaliculata. Frons subtriangularis, utrinque excavata, dente mediano valde prominente, lateralibus obsoletis; margine subtiliter denticulata. Chelipedes fere æquales, sat lati et depressi, superne costis inequaliter tuberculatis insculpti, inferne obsolete squamulati; carpo oblongo-quadrato, longitudinaliter bi-costato, margine antico recto et lævi, lobula parvula denticulata interna excepta; margine carpi postico denticulato. Manus lata, depressa, costa mediana paullo prominente, margine externo lævi, acuto, ciliato; digitis brevibus non contortis, non hiantibus, dactylo paullo longiore. Pedes ambulatorii subpilosi. ♂ Carap. long. 0·26; lat. 0·235; manûs long. 0·36; lat. 0·18 poll.

Hab.—In portu "Hong Kong."

296. PORCELLANA SERRATIFRONS, nov. sp. Carapax depressus, non longior quam latior, fere lævis, glaber, interdum partim pubescens, lateraliter leviter striatus, antice contractus, postice late rotundatus. Margines cristati, medio 1–2 denticulati, et prope antennarum insertionem bi-spinulosi. Angulus orbitæ externus acutus. Frons tridentata, dentibus prominentibus, triangularibus, dente mediano majore sed quam laterales vix prominentiore; margine spinulis serrato. Antennarum pedunculi spinuligeri. Maxillipedes externi transversim striati, mero quam ischium longiore. Chelipedes maris glabri, punctati; meri angulo prominente, bi-denticulato; carpo utrinque tridentato, (interdum antice quinque-dentato,) dentibus parvulis, terminalibus acutis; manûs costa vel angulo mediana generaliter minus prominente, obtuso; digitis contortis, intus pilosis. Manus minor margine externo spinulosus; digiti immobilis extremitate profunde bifida. Manus fœminæ extus pubescens; crista mediana tuberculata. Pedes ambulatorii setosi. ♀ Carap. long. 0·32; lat. 0·32; manûs maj. long. 0·53; lat. 0·19 poll.

Hab.—In portu "Hong Kong."

297. PORCELLANA DISPAR, nov. sp. Carapax paullo inequalis, glaber, lateribus pubescens. Margo lateralis prope medium bidenticulatus, et supra antennæ insertionem spinula armatus. Marge orbitalis superior minus concavus. Frons superne visa fere recta, parce convexa, medio acute deflexa; angulis internis orbitarum vix prominentibus. Chelipedes valde inæquales; major lævis; carpo

medio angulato, margine antico undulato; manu lata nuda, non contorta; digitis punctatis, dactylo curvato, intus unidentato. Manus minor valde angularis, angulo mediano acuto; margine externo pubescente; digitis valde contortis et curvatis intus excavatis lanosis. Chelipedis minoris carpus margine antice bidentatus, dentibus obtusis. Color pallide coccineus; digitis purpureis. ♂ Carap. long. 0·24; lat. 0·22; manûs maj. long. 0·38; lat. 0·18 poll.

Hab.—In portu Jacksoni vel "Sydney" Australiæ; littoralis sub lapidibus.

298. PORCELLANA LATIFRONS, nov. sp. Carapax subquadratus, longior quam atior, paullo convexus, lævis. Lineæ marginales distinctæ, sed non cristiformes, medio 3–4 spinulis armatæ, et spina acuta antrorsum porrecta supra antennam. Regio frontalis minute rugulosa. Frons latissima, laminata, trilobata, lobo mediano non prominentiore, quadridentato, lobis lateraliter bidentatis. Oculi grandes, lateraliter porrecti. Antennæ flagellum fere nudum, articulo primo longo. Maxillipedes externi graciles elongati. Chelipedes fere læves, superne obsolete reticulati; carpo magno, utrinque tridentato, dentibus parvis; manu serie spinularum submarginali armata; digitis contortis, intus tomentosis. Manûs majoris digiti intus unidentati; minoris digiti intus excavati. Color variabilis, obscuro-viridis, variegatus. ♂ Carap. long. 0·25; lat. 0·22 poll. *P. armatæ*, Danæ (non Gibbesii) valde affinis, (an differt?) sed fronte paullo latiore, medio quadridentata et minus depressa.

Hab.—In portu "Hong Kong" vulgaris; et ad insulam "Ousima"; e prof. 1–4 org. accepta.

299. PORCELLANA STREPTOCHELES, nov. sp. Corpus membraque superne nuda. Carapax vix æqualis sed regulariter parce convexus, lævis, glaber, obsolete transversim lineolatus, lobulis protogastricis prominentibus. Margines laterales convexi, acuti, medio irregulariter denticulati, denticulis duobus majoribus. Frons nec lata nec prominens, profunde tridentata, dentibus acutis, dente mediano deflexo, parce majore sed non quam laterales prominentiore, basi utrinque un-denticulato. Maxillipedes externi graciles, ischio mediocre. Oculi parvi. Chelipedes grandes, inæquales; meri apice dentiformi valde prominente; carpo lævi, utrinque obsolete 2–3 dentato; manu medio angulari; manu minore margine externo obsolete denticulata; digitis manûs minoris quam majoris magis contortis, intus late excavatis et pilosis; dactylo quam digitus immobilis breviore, intus bidentato; digito immobili unidentato, extremitate emarginato. Pedum ambulatoriorum merus gracilis, superne læviusculus. Color ruber. ♂ Carap. long. 0·23; lat. 0·215 poll. A *P. Dehaani* differt carapace nudo, fronte latiore, dente mediano minus prominente; et margine super-antennario non denticulato.

Hab.—In sinu "Simon's Bay" ad Promontorium Bonæ Spei; in fundo arenoso prof. 6–12 org.

300. PORCELLANA PULCHRA, nov. sp. Carapax sat convexus, æqualis, lævis, obsolete lineolatus, cæruleo-fuscus, longitudinaliter albo-univittatus. Margo lateralis convexus, cristatus, crista laminata paullo resupinata. Frons valde prominens, laminata, tridentata; dente mediano majore, acute-triangulato; dentibus lateralibus parvis sed acutis. Angulus orbitæ externus acutus, subtiliter serratus. Antennæ flagellum fere nudum, articulis oblongis. Regiones latero-inferiores paullo concavæ. Chelipedes parvi graciles, medio longitudinaliter angulati; meri apice valde prominente; carpi margine antico unidentato; manu triangulari, basi gracile, margine externo fere recta, acuta, ciliata. Pedes ambulatorii parum pilosi, setis plumosis; mero superne serrulato; dactylo longitudine dimidiam articuli penultimi adequante. Pedum posticorum merus brevis. ♀ Carap. long. 0·24; lat. 0·23 poll.

Hab.—In portu "Hong Kong"; fundo limoso, prof. sex org.

301. PORCELLANELLA PICTA, nov. sp. Carapax oblongus, æqualis, lævis, glaber, antice et lateraliter leviter striatus; colore albus, antice maculis cæruleis, marginatis ornatus. Margo lateralis integer, vix acutus. Sutura infero-lateralis

margini approximata. Frons horizontalis, laminata, valde prominens, tridentata, dentibus acutis, dente mediano majore et magis prominente. Antennæ carapace pilus duplo longiores; articulo primo intus acuto prominente. Epimera oblique striato. Chelipedes sat graciles, crassi, obtusi, læves, glabri, albi, cæruleo-maculati; angulis anticis meri ischiique productis acutis; carpo parvo, marginibus lævi; manu elongata, basi contracta, intus linea tomentosa longitudinali ornata, intra digitos oriente; digitis gracilibus minuentibus, quasi distortis; dactylo manûs majoris quam digitus immobilis multo breviore. Pedes ambulatorii parvi læves, glabri, vix setosi; dactylo intus quadri-unguiculato, unguiculis medianis majoribus. Abdominis segmenti ultimi pars mediana triangularis parva, partes laterales grandes. ♂ Carap. long. 0·425; lat. 0·34; manûs maj. long. 0·59; lat. 0·20 poll.

Hab.—In portu "Hong Kong"; inter laminas *Pennatularum* e fundo argillaceo prof. sex org. acceptarum.

302. Polyonyx sinensis, nov. sp. Carapax convexus, subquadratus, angulis rotundatus, pallide griseus, obscuro-maculatus. Frons sat lata, leviter convexa. Chelipedes valde inæquales, læves, crassi; chelipedis majoris mero dimidiam carpi superante, antice non dilato; carpo quam manu vix breviore, margine antico dilatato: manu crassa, extus breviter ciliata, intus ad medium sparsim pilosa; dactylo quam digitus immobilis breviore; digitis brevibus, intus leviter unidentatis, apicibus hamatis. Pedes ambulatorii nudi; articulo penultimo subtus 1–2 spinuloso; dactylo tri-unguiculato, unguiculo terminali multo majore. Carap. long. 0·15; lat. 0·20; chelipedis maj. long. 0·52 poll.

Hab.—In mari Sinensi, lat. bor. 23°; e fundo conchoso-arenoso prof. 26 org. acceptus.

Hippidea.

303. Remipes testudinarius, Latreille; Gen. Crust. et Ins., v. i. p. 45. M. Edw.; R. Anim. Crust. pl. xlii. f. 1.—Ad oras insulæ "Ousima"; sublittoralis.

304. Mastigopus gracilis, nov. sp. Carapax perconvexus, æqualis, lineolis brevibus, transversis, crenulatis, breviter setosis exasperatus; antrorsum quam retrorsum magis asper. Frons tridentata, dentibus acutis, mediano triangulari, lateralibus gracilibus quam medianus longioribus. Margo antero-lateralis sexdentatus, dentibus spiniformibus, retrorsum minuentibus. Oculi graciles et dimidiam antennularum longitudine superantes. Antennulæ tertiam partem carapacis longitudine adequantes. Maxillipedes externi oblongi, fere rectangulares, dimidia parte longiores quam latiores, superficie plani glabri, sparsim punctati. Chelipedum articuli penultimus et antepenultimus cylindrici, læves, fere nudi; dactylus carapace longior, setosus, 12-articulatus, articulis elongatis. Pedes 2di 4ti modice hirsuti, dactylis eis *Remipedis* similibus. Abdominis segmentum ultimum lanceolatum, crassum, medio longitudinaliter sulcatum et versus basin bi-carinatum; extremitate acuminatum. Carapax olivaceus postice transversim albo-fasciatus. ♂ Carap. long. 0·52; lat. 0·36; chelipedis long. 1·05 poll.

Hab.—In mari Sinensi, lat. bor. 23°; in fundo conchoso ad prof. 20 org. vulgaris.

305. Hippa analoga, Stm.; Crust. et Echin. Pacific Coast of N. Am., p. 46: *H. talpoidea*, Dana; Proc. Acad. Nat. Sci., Philad. vii. 175.—California.

Lithodidea.

306. Echidnocerus cibarius, White; Proc. Zool. Soc, 1848, p. 47. Annulosa, pl. ii. iii.—In portu "Sitka."

307. Echidnocerus setimanus, Stm.; Crust. et Echin., etc. p. 37. *Ctenorhinus setimanus*, Gibbons.—California.

308. HAPALOGASTER DENTATUS. *Lomis dentata*, De Haan; Fauna Jap. Crust., 219, pl. xlviii. f. 2.—In sinu "Hakodadi" insulæ "Jesso" vulgaris; litoralis inter lapides algosos. Etiam in portu "Simoda."

PAGURIDEA.

309. CENOBITA PURPUREA, nov. sp. Carapax convexus, antice turgidus, fronte valde contractus; regione gastrica granulata, granulis antrorsum sparsis, retrorsum magis confertis, acutis et setigeris. Regiones branchiales minus prominentes marginibus fere rectis. Oculi valde compressi, superne subtiliter granulati, apicibus acute prominentibus sub angulo recto. Squamulæ ophthalmicæ acutæ non denticulatæ. Pedes marginibus sat pilosi, subtus extremitates versus dense hirsuti; superficie superiore plerumque læves, marginibus et extremitatibus spinulosis exceptis. Manus major spinulosa vel acute granulata, granulis parvulis, nigro-acuminatis, superne numerosis, extus sparsis. Dactyli pedum ambulatoriorum spinulosi et pilosi; ei lateris recti paullo depressi sed non angulati. Pedis sinistri tertii paris carpus angulo inferiore productus; articuli ultimus et penultimus extus vix convexi, lævis, punctati; dactylus intus valde convexus, et spinulosus. Coxæ pedum posticorum maris valde productæ; recta longior, pedes 4ti paris longitudine adequante; sinistra prope extremitatem abrupte angustata, vel margine externo excisa. Anim. long. 4; carap. long. 1·5; regionis gastricæ long. 0·96; frontis lat. 0·31; regionis branchialis lat. 0·87 poll. *C. perlatæ*, De Haan, (an M. Edw.?) affinis, sed pedibus setosis, et pede tertio sinistro extus lævi.

Hab.—Ad insulas "Bonin" et "Amakirrima."

310. CENOBITA RUGOSA, M. Edw.; Hist. Nat. des Crust., ii. 241. De Haan; loc. cit. 212. Dana; loc. cit. i. 471. *C. clypeata*, Owen.—Ad insulas "Bonin" et "Tahiti."

311. CENOBITA CAVIPES, nov. sp. Regio gastrica quam cardiaca vix longior. Regiones branchiales angulis posticis valde salientes, lateribus paullo concavæ. Regio gastrica vel anterior superficie fere planata, medio punctata, lateribus scabricula et setosa. Frons contracta, dentibus lateralibus acuminatis. Oculi longi, compressi, superne scabriculi, apicibus obtusi. Squamulæ ophthalmicæ acutæ, marginibus integris. Pedes fere nudi, superne fere læves, versus extremitates spinulosi. Manus major superficie externa superne granulata, inferne lævissima; granulis albis, oblongis, depressis, superioribus nigro-apiculatis exceptis. Dactylus pedis tertii recti fere cylindricus. Pes tertius sinister angularis; articulo penultimo superficie externa postice convexo et subtiliter granulato, antice lævi et paullo concava, superficie superiore planata, antice angulo prominente e latere separata, margine inferiore postice concavo, antice convexo; dactylo quadriangulato, extus lævi et versus basin profunde concavo, angulis internis spinulosis. Coxæ pedum posticorum maris non productæ. Anim. long. circiter 3; carap. long. 0·95; regionis gastricæ long. 0·50; frontis lat. inter apices dentium 0·22; carap. lat. ad regiones branchiales 0·66 poll. A *C. compressa*, M. Edw., differt marginibus branchialibus non convexis. A *C. rugosa* differt coxis pedum posticorum maris non productis.

Hab.—Insula "Loo Choo."

312. DIOGENES CUSTOS, Dana. *Pagurus custos*, Fabr., M. Fdw.: Hist. Nat. des Crust., ii. 236.—In portu "Sydney" Australiensi.

313. DIOGENES BREVIROSTRIS, nov. sp. Carapax fere lævis, sed lateribus scabriculus, marginibus antice 5–6 spinulosus. Rostrum mobile marginibus integrum, quam squamulæ ophthalmicæ brevius. Frontis dentes obtusi, laterales magis prominentes. Squamulæ ophthalmicæ et aciculum antennarum iis *D. Edwardsii* similes. Chelipes grandis nudus, superne granulatus, granulis minutis, subspiniformibus; superficie inferiore glaber, obsolete granulatus; carpi manûsque margine superiore serrato, dentibus minutis, (decem in carpo); manu margine inferiore acute granulata, crista obliqua faciei exterioris 7–8 spinulosa; dactylo superne costato, costis granulatis. Chelipes dexter vel minor pilosus,

margine superiore spinulatus, spinulis acutissimis. Pedes 2di 3tiique graciles chelipedem majorem superantes; articulo antepenultimo margine denticulato; penultimo superne fere lævi; dactylis compressis, hirsutis. Anim. long. 1·25; carap. long. 0·29; frontis lat. 0·135; chelip. mag. long. 0·45 poll. A *D. custode* differt rostro breviore, integro.

Hab.—In sinu "Simon's Bay" ad Promontorium Bonæ Spei; in fundo arenoso prof. 12 org.

314. DIOGENES EDWARDSII. *Pagurus Edwardsii*, De Haan; loc. cit., 211, pl. 1, f. 2. Specimina tota quæ observavi actiniam parasiticam in manu sinistra sitam gerunt.—In mari Sinensi, lat. bor. cireiter 23°; in fundo arenoso prof. 20–30 org. Etiam in portu "Hong Kong."

315. DIOGENES PENICILLATUS, nov. sp. Frontis dens medianus obtusus, rotundatus; dentes laterales acuminati, quam medianus magis prominentes. Rostrum mobile acutissimum, spiniforme, apices squamularum ophthalmicarum vix attingens. Oculi longitudine quam frontis latitudo tertia parte breviores, sed pedunculum antennarum paullo superantes; corneis non dilatatis. Squamulæ ophthalmicæ latæ, extus subarcuatæ, apice 2–3 spinulosæ. Antennarum flagellum inferne ciliatum. Chelipes sinister robustus, formâ fere ut in *D. Edwardsii;* mero trigono, marginibus totis crenulatis; carpo manuque extus acute granulatis vel spinulosis, intus depresso-granulosis; carpo margine superiore 10–12 denticulato; manu extus pilis tenuibus densis penicillata, area pilosa postice crista transversa denticulata terminata; manu superne spinulis bi-seriatis armata. Chelipes rectus sparsim pilosus. Pedes ambulatorii eis *D. Edwardsii* fere similes. Long. 1; carap. long. 0·26; frontis lat. 0·13; chelipedis grandis long. 0·34 poll. A *D. spinifronte*, pedibus pilosis differt.

Hab.—In mari Pacifico prope oras orientales insulæ "Niphon," lat. bor. 38°; e fundo arenoso prof. 30 org. acceptus.

316. PAGURUS ASPER, De Haan; (non M. Edw.) loc. cit., 208, pl. xlix. f. 4. Dana; loc. cit., i. 450.—Ad insulam "Ousima"; littoralis, inter lapides.

317. PAGURUS DIFFORMIS, M. Edw.; Ann. des Sc. Nat., ser. 2dæ, vi. 272, pl. xiii. f. 4.—Ad insulam Ousima.

318. PAGURUS SCULPTIPES, nov. sp. Carapax glaber, nudus. Oculi longitudine frontem adequantes, sed extremitatem pedunculi antennularum vix attingentes. Squamulæ ophthalmicæ prope apicem 4-spinulosæ, spinulis æqualibus. Antennarum pedunculus oculis brevior, aciculum parvum, gracile. Pedes longe pilosi, superne breviter spinulosi. Manus sinister articulum ped. amb. penultimum vix superans; marginibus æqualiter crenulatis; superficie inferiore lævi. Pedis amb. tertii sinistri articuli ultimus penultimusque lati, extus profunde excavati, superficie transversim eleganter sulcati, medio longitudinaliter costati, marginibus crenulati, et ciliati. ♂ Long. 1·5; carap. long. 0·34; frontis lat. 0·165 poll. Facies *P. punctulati.* A *P. setifero* differt pede sinistro extus transversim striato.

Hab.—In sinu "Kagosima" Japoniæ.

319. PAGURUS PUNCTULATUS, Oliv.; Dana; loc., cit., i. 451, pl. xxviii. f. 4—In freto "Gaspar," et ad insulam "Loo Choo;" sublittoralis.

320. PAGURUS STRIATUS, Latr.; M. Edw.; Hist. Nat. des Crust., ii. 218.—In sinu "Funchal" ad insulam Madeiræ; e prof. 30 org.

321. PAGURUS PLATYTHORAX, nov. sp. Valde depressus. Carapax superficie dorsali glaber, nudus. Oculi sat grandes, pedunculos antennarum superantes. Squamulæ ophthalmicæ basi intus unidentatæ, apice bidentatæ. Aciculum parvum. Pedes irregulariter pilosi. Chelipedes parvi æquales, superne paullo asperi non spinulosi. Sternum latum, planatum, triangulare, inter chelipedes sat latum, sutura nulla inter segmenta pedum primi et secundi paris. Maxillipedes externi graciles, superficie externa planati, basi valde aperti et ad apicem

sterni distincte juncti. Pedes amb. depressi, non spinosi. Abdominis segmentum ultimum extremitate æqualiter lobatum. Long. 1·4; carapacis long. 0·32; frontis lat. 0·28; chelipedis long. 0·45 poll. *P. scabrimano* (Dana;) facie affinis sed magis depressus, sternoque dilatato.

Hab.—Ad insulam "Loo Choo"; in testis *Coni* generis.

322. ANICULUS TYPICUS, Dana; loc. cit., i. 461, pl. xxix. f. 1. *Pagurus aniculus*, Fabr.—In portu "Simoda" Japoniæ.

323. CALCINUS TIBICEN, Dana; l. c. i. 457. *Pagurus tibicen*, (Herbst,) M. Edw.—Ad insulas "Bonin," "Ousima" et "Loo Choo."

324. CALCINUS LATENS, Dana; l. c., i. 459, pl. xxviii. f. 11. *Pagurus latens* Randall.—Ad insulam "Loo Choo."

325. CALCINUS ELEGANS, Dana; l. c., i. 458, pl. xxviii. f. 10. *Pagurus elegans*, M. Edw.—Ad insulam "Loo Choo."

326. CLIBANARIUS LONGITARSIS, Dana; l. c., i. 464. *Pagurus longitarsis*, De Haan.—Ad insulam "Loo Choo."

327. CLIBANARIUS VULGARIS, Dana; l. c., i. 462. *Pagurus clibanarius*, (Herbst,) Latr.—In portu "Hong Kong"; in fundo argillaceo, prof. 4 org; et in freto "Gaspar."

328. CLIBANARIUS STRIOLATUS, Dana; loc. cit., i. 463, pl. xxix. f. 3.—Ad insulam "Loo Choo."

329. CLIBANARIUS GLOBOSIMANUS, Dana; Proc. Acad. Nat. Sci., Philada., v. 271. *C. corallinus?* D.; U. S. Expl. Exped., Crust. i. 468, pl. xxix. f. 8, (an M. Edw.?)—Ad insulam "Loo Choo" vulgaris, sublittoralis.

330. CLIBANARIUS ÆQUABILIS, Dana; U. S. Expl. Exped., Cr. i. 464.—Ad insulam Madeiræ; e fundo arenoso prof. 20 org. acceptus.

331. CLIBANARIUS PACIFICUS, nov. sp. *C. æquabili* valde affinis, sed pedibus magis pilosis, manu inferne leviore, dactylo ped. amb. paullo longiore. Color obscuro-olivaceus; pedes 2di et 3tii paris flavi; digiti rubri. Long. 1·25; carap. long. 0·39; frontis lat. 0·16 poll.

Hab.—Ad insulas "Tanegasima" et "Ousima"; littoralis inter rupes.

332. PAGURISTES DIGITALIS, nov. sp. Carapax paullo setosus, medio fere nudus, antrorsum paullo augustatus; scutella cardiaca mediana lanceolata, versus extremitatem acutam posteriorem paullo dilatata. Frontis dens medianus elongatus, subcarinatus, acutissimus, basin squamularum oph. superans. Oculi valde elongati, graciles, quam frontis lat. paullo longiores, sed pedunculi antennularum extremitatem non superantes. Chelipedes æquales, setosi, spinulosi, spinis nigro-apiculatis; manu sat lata, subtrigona, superne planata; dactylo extus latere planato, cristis obliquis pectinatis ad septem insculpto. Pedes postici hirsuti, secundi paris superne spinosi dactylis quam art. penultimi plus dimidia longioribus. Scuta abdominis antice sat indurata, marginibus ciliata. Segmentum abd. ultimum extremitate fere æquilobatum. Superficies pedum inferior prope bases areolis callosis prædita. Long. 3; carap. long. 0·81; frontis lat. 0·40; chelip. long. 1·17 poll. *P. turgido* affinis, manibus exceptis.

Hab.—In portu "Hakodadi" insulæ "Jesso."

333. PAGURISTES SEMINUDUS, nov. sp. Carapax antennæque toti nudi, vel nudiusculi. Regio gastrica grandis, quam cardiaca multo longior. Scutella cardiaca mediana prope basin paullo contracta, extremitate obtusa. Latera antice sparsim spinulosa. Rostrum longum, gracile, extremitate acutum, deflexum, medium squamularum oph. superans. Oculi longi, robusti, fronte longitudine multo superantes, etiam pedunculum antennularum superantes. Squamulæ ophthalmicæ apice acuminatæ extrorsum flexæ; marginibus integræ. Antennarum flagellum parum pilosum, pilis tenuisimis; aciculum magnum. Cheli-

pedes similes, sinister major; carpo manuque pilosis, spinulosis, spinulis calcareis albis, in marginibus superioribus majoribus; digitis superne nudis, extus pilosis, marginibus internis acutis, apicibus acutis nigris. Pedes 2di 3tiique paris sat graciles; articulis ultimo penultimoque superne spinosis; dactylis utrinque ciliatis. Pedes 4ti paris paullo elongati, areola scabricula manûs minima. Abdominis segmentum ultimum multo elongatum, inæqualiter lobatum, lobo sinistro longiore. Superficies pedum inferior areolis callosis carens. Long. 1·78; carap. long. 0·44; frontis lat. 0·22; oculi long. 0·23 poll.

Hab.—In sinu "Kagosima" Japoniæ.

334. SPIROPAGURUS SPIRIGER. *Pagurus spiriger*, De Haan; Fauna Jap., Crust. 206, pl. xlix. f. 2. Paguri hujus speciei pedibus natant etiam testas gerentes. —Prope oras Sinenses, lat. bor. 22°; in fundo argillaceo prof. 16 org.

335. EUPAGURUS MEGALOPS, nov.sp. Carapax nudus, parte anteriore deplanatus, glaber. Dens rostriformis angulo obtusus, quam dentes inter oculorum et antennarum bases minus prominens. Oculi remoti, perbreves; cornea valde turgida, pedunculo duplo crassiore. Antennarum aciculum e basi gracillimum, parum ciliatum, apicem oculorum longitudine adequans; flagellum nudum, quam pedes longius. Chelipedes quam ped. amb. paullo breviores, marginibus ciliati, superficie inferiore confertim granulati et pubescentes. Chelipedis dextri articuli eis *E. gracilipedis* rationibus similes; carpus superne scabrosus et pubescens; manus media parte paullo convexus et fere lævis, lateribus depressa, sparsim granulata; digiti pilosi, palmâ breviores, apicibus calcarei, uncinati. Chelipes sinister gracilis; carpo trigono, superne spinoso; manu quam carpus dextri non breviore, palmâ convexa obsolete bicarinata, carinis granulatis, digitis curvatim subdeflexis. Pedes 2di 3tiique paris pæne nudi, superficie glabri, marginibus superne spinulosi; dactylis longis, quam manus dexter longioribus, gracillimis, versus extremitates contortis et superne ciliatis. ♀ Long. 1.70; carap. long. 0·36; frontis lat. 0·20 poll. Ab *E. gracilipede* differt oculis crassioribus et manibus ciliatis; a *P. conformi* (De Haan,) chelipedis minoris carpo superne spinoso.

Hab.—In mari Sinensi Boreali, lat. bor. 23°; ad prof. 26 org.

336. EUPAGURUS GRACILIPES, nov. sp. Dens rostriformis grandis, prominens, acutus. Oculi breves, crassi; cornea inflata. Antennarum aciculum oculum superans, utrinque ciliatum; flagellum nudum. Chelipes dexter gracilis, quam pedes amb. brevior; carpo subspinuloso ut in *E. bernhardo;* manu depressa, subtenui, elongato-ovata, duplo longiore quam latiore, margine externo paullo dilatata, crenulata, superficie superiore leviuscula, sparsim minute granulata; digitis lævibus valde depressis, apicibus calcareis, uncinatis, decussantibus; dactylo supra marginem carinato. Pedes 2di 3tiique paris eis *E. bernhardi* similes, dactylis gracilioribus. Long. 1·8; carap. long. 0·35; frontis lat. 0·19 poll. Differt ab *E. splendescente* et ab *E. Mertensii*, dactylis pedum ambulatoriorum quam manus sinistra longioribus. Ab *E. bernhardo* pedibus gracilioribus, manum dextra tenuiore, etc.

337. EUPAGURUS OCHOTENSIS, Brandt. *Pagurus bernhardus* var. C., *spinimana;* vel *P. ochotensis*, Brandt; Sibirische Reise, Zool. p. 108. *Bernhardus armatus*, Dana. *Eupagurus armatus*, Stm.—In sinu "Hakodadi" insulæ "Jesso," Japonicæ.

338. EUPAGURUS CONSTANS, nov. sp. Thorax robustus; abdomen sat parvulum. Carapacis pars anterior v. gastrica convexa, valde indurata, modice fasciculata. Frontis dens rostriformis acutus prominens; dentes laterales acuminati, rostro minus prominentes. Oculi sat longi, corneis vix dilatatis. Antennarum aciculum longum, pilosum, oculos superans. Chelipedes grandes, (dexter pedes amb. multo superans,) spinulosi et setosi, tuberculis setiferis inter spinulos sparsis, setis longitudine spinas non superantibus. Chelipedis dextri ischium angulo interno spina acuta longiuscula armatum, merus margine antico superne spinis sex pectinatus; carpus paullo longior quam latior, et quam

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palma manus paullo longior; manus superne planata, spinulis subseriatis, seriebus mediana et marginalibus distinctis; margine sinistro ad basin dactyli sinuato; digiti palmâ breviores, superne marginibus internis dense fasciculati, setis introrsum versis. Chelipedis sinistri dactylus non spinosus. Pedes ambulatorii graciles, sparsim fasciculati, fasciculis transversis; carpo superne 1–2 spinoso; dactylis gracilibus, non contortis, quam art. penultimus longioribus, setis rigidis sparsim armatis, unguiculo brevissimo. Pedes 4ti paris lati compressi, superne longe ciliati, dactylo brevissimo, processu art. penultimi parum superante. Segmentum thoracicum secundum margine inter bases maxillipedum dentibus duobus acutis armatum. Color aurantius; pedes transversim rubro-fasciati. Long. 3·6; carapacis long. 0·8; frontis lat. 0·4; chelipedis dextri long. 2·3 poll. Carcinœcium corneum spirale, base convolutum, muricatum, a polypo hydroideo (*Hydractinia sodalis*, nob.) constructum; apice testam minutam continente.

Hab.—In sinu "Hakodadi" insulæ "Jesso"; e fundo saxoso prof. org. 4.

339. EUPAGURUS PECTINATUS, nov. sp. Carapax modice fasciculatus. Dens rostriformis parvus, acutissimus, parum prominens. Oculi graciles, aciculum antennarum superantes, corneis non dilatatis, squamulis acuminatis. Flagellum antennarum chelipedes superans, articulis minute setosis. Chelipedes mediocres, mero leviusculo margine antice 2–4 spinoso, carpo manuque spinosis et setosis, spinis acutis, erectis, fere æqualibus, setis spinis triplo longioribus. Chelipedis dextri carpus non longior quam latior, sed quam palma manûs longior, superficie postero-exteriore fere lævis; manus paullo convexa, superficie superiore tota spinosa, spinis longitudinaliter 8-seriatis, eis marginis externi paullo longioribus, pectiniformibus, sursum flexis; digiti depressi, palmâ breviores, apicibus cornei acuminati; dactylus margine externo pectinatus. Chelipedis sinistri carpus seriebus duabus spinarum armatus, interstitia lævi; manus convexa, spinosa, spinis medianis longioribus; digiti vix spinosi. Pedum 2di 3tiique paris chelipedes superantes, sat lati, superne longe hirsuti, dactylis haud contortis, perlatis, compressis, lateribus paullo excavatis, supra intusque pilosis, margine inferiore nigro 10-spinuloso, ungiuculo robusto, nigro, acuto. Pedum 4ti paris dactyli sat grandes, processu art. penultimi multo superantes, unguiculo nigro acuto. Long. 3; carap. long. 0·7; frontis lat. 0·34; chelipedis dextri long. 1·42 poll. *E. constanti* facie affinis, sed chelipedibus brevioribus, dactylis pedum 4ti paris longioribus, etc.

Hab.—In sinu "Hakodadi" insulæ "Jesso."

340. EUPAGURUS TRIGONOCHEIRUS, nov. sp. *E. pubescenti* affinis. Chelipedis dextri carpus sat brevis, quam manus latior, turgidus, superficie subspinulosus; manus non duplo longior quam latior, granulatus; digiti robusti apicibus cornei. Manus sinistra late trigona, quam manus dextra quartâ parte minor; carina valde prominente, introrsum dilatata, denticulata; margine exteroinferiore valde dilatato; superficie obliqua lata, concava. Pedes amb. lateris dextri chelipedem dexterum superantes. Long. 3 poll.

Hab.—In Oceano Arctico et in freto Beringiano vulgaris; sublittoralis, et ad prof. 10–20 org. inventus.

341. EUPAGURUS PUBESCENS, Brandt; in Middendorff's Sibirische Reise, Zool. 111. *Pagurus pubescens*, Kroyer; Tidsskrift, ii. 251. (partim.)—In mari Pacifico boreali.

342. EUPAGURUS PILOSIPES, nov. sp. Dens rostriformis setosus. Pedes valde hirsuti. Chelipes dexter superne spinulosus, carpo prope marginem internum spinosum longitudinaliter canaliculata, canaliculo lævi, absque spinis; manu elongata, minuente, spinulis æqualibus non crebris. Chelipes sinister superne spinulosus, carpo superne canaliculato; manûs digitis quam palma fere duplo longioribus, late hiantibus. Pedes 2di 3tiique paris longitudinaliter rubro-vittati, dactylis quam art. penultimi paullo brevioribus. Long. 1 poll. *E. hir-*

sutiusculo valde affinis, sed chelipedibus magis spinulosis, digitis hiantibus, et ped. amb. vittatis. Ab *E. Samuelis* differt manu dextra augustiore, etc.
Hab.—Ad insulam "Loo Choo."

343. EUPAGURUS HIRSUTIUSCULUS, Stm.; Crust. et Echin. P. C. N. Am., p. 44. *Bernhardus hirsutiusculus*, Dana; U. S. Expl. Exped., Crust. i. 443; pl. xxvii. f. 3. —In sinu "Hakodadi" insulæ "Jesso."

344. EUPAGURUS SAMUELIS, Stm.; Crust. and Echin. Pacific Coast of N. Am. p. 42. Chelipedum merus subtus tuberculo obtuso valde prominente, interdum spiniformi armatus. Manus dexter sat lata, depressa, margine externo arcuata. Pedes 2di 3tiique paris transversim rubro-fasciati, dactylis brevibus. *E. hirsutiusculo* perquam affinis, differt manûs dextrâ formæ.
Hab.—In sinibus "Hakodadi," "Simoda" et "Kagosima" Japoniæ.

345. EUPAGURUS ANGUSTUS, nov. sp. Carapax angustus. Pedes modice longe pilosi. Dens rostriformis vix prominens sed acutus. Oculi sat longi, sed pedunculum antennarum non superantes, corneis parum dilatatis. Squamulæ ophthalmiacæ acuminatæ. Aciculum parvulum, pedunculo antennæ multo brevius; flagellum longum, nudum. Chelipes dexter elongatus, pedes amb. superans, carpo manuque nudis, granulatis, granulis æqualibus subspiniformibus; carpo tertia parte longiore quam latiore; manu convexa, quam carpus paullo latiore; versus extremitatem minuente; digitis parvis, palmâ dimidia brevioribus, apicibus calcareis; dactylo extus seriebus duabus granulorum majorum. Chelipes dexter inferne granulatus, mero tuberculo uno prominente medio ornato. Chelipes sinister carpum dextri vix superans, spinulosus et pilosus, medio subcarinatus, carpi spinulis longioribus; manu extus turgidula; digitis longis paullo hiantibus. Pedes 2dii 3tiique paris sat compressi, carpo superne 4–5 spinuloso, dactylis haud contortis, quam art. penultimi parum longioribus, unguiculo longo gracili præditis. Long. 1·6; carapacis long. 0·35; frontis lat. 0·16; chelipedis dextri long. 0·96 poll.
Hab.—Ad insulam "Kikaisima."

346.—EUPAGURUS MIDDENDORFFII, Brandt; in Middendorff's Sibirische Reise· Zool., p. 108, pl. v. f. 1–16.—In sinu "Hakodadi" insulæ "Jesso."

347.—EUPAGURUS JAPONICUS, nov. sp. Descr. *maris*. Carapacis pars anterior bene indurata, glabra, convexa. Dens rostriformis valde prominens, acutus. Oculus dimidiam frontis lat. superans, cornea paullo dilatata. Squamula ophthalmica apice oblonga, sulco mediano hirsuto, extremitate non acuminata. Antennarum aciculum longum, oculum superans, dense fasciculatum, flagellum articulis setosum. Chelipedes grandes, utrinque pedes amb. multo superantes. Chelipes dexter dense pilosus; mero superne lævi, margine antica non pectinato, subtus valde dilatato, hirsuto, margine dextro pectinato; carpo manuque superne granulo-scabroso; carpo quam palma manûs non breviore, spinis purpureis intus armato, superficiei linea mediana lævi; manu grandi, plus duplo longiore quam latiore, palma serie mediana spinarum armata; digito immobili extus denticulato; dactylo extus serie dentium validorum cæruleorum ad 12 armato. Chelipes sinister scabrosus et setosus, mero carpoque eis dextri æqualibus sed angustioribus et magis compressis; manu subtetragona, superne extusque carinata, carina superiore mediana, spinosa. Pedes ambulatorii breves, robusti, superne dense hirsuti non spinulosis; dactylis latis, haud contortis, quam art. penult. brevioribus, unguiculis robustissimis. Color luteo-rufus, partim subtiliter maculatus; pedes ambulatorii rubro-annulati. Long. 3·2; carap. long. 0·83; frontis lat. 0·38; chelipedis dextri long. 2·08 poll. A *P. lanuginoso* differt chelipedibus longioribus.
Hab.—In portu "Simoda" Japoniæ.

348. EUPAGURUS SINUATUS, nov. sp. Dens rostriformis acutus prominens. Oculi robusti, aciculo breviores, corneis paullo dilatatis, squamularum apicibus elongatis. Chelipes dexter pedes amb. non superans, breviter pubescens,

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granulatus; margine interno ad manûs dactylique commisuras sinuato; carpo subtriangulari, margine interno spinoso, superficiei linea mediana lævi; manu lata, seriebus mediana et marginalibus spinularum armata in fœminis; dactylo superne serie mediana tuberculorum acutorum ornato. Chelipes sinister subtrigonus, hirsutus et granulatus, carpi margine superiore spinoso; manu non spinulosa, carina obtusa submediana. Merus chelipedum subtus profunde excavatus, marginibus longe ciliatus, margine externo spinosus. Pedes 2di 3tiique paris superne hirsuti non spinulosi, dactylis sat latis, haud contortis, corneo-spinulosis. Maris long. 2·2; carap. long. 0·6; frontis lat. 0·3; chelip. dext. long. 1·28 poll.

Hab.—In portu Jacksoni vel "Sydney" Australiensi.

349. EUPAGURUS TRICARINATUS, nov. sp. Oculi remoti, grandes, aciculum superantes, sed pedunculum antennarum non superantes, basi constricti; corneis dilatatis. Annulum ophthalmicum sat apertum. Dens rostriformis obsoletus. Pedes nudi vel nudiusculi. Chelipedes similes, sinister quam dexter parum minor. Manus longitudinaliter tri-cristatæ; crista una mediana, duabus marginalibus, denticulatis; carpus paullo bi-cristatus. Pedes 2di 3tiique paris gracillimi, nudi; dactylis quam art. penult. multo longioribus, haud contortis. Color antrorsum fuscus; manus albidæ; pedes amb. rubro- et olivaceo-fasciati. Long. 0·5; carapacis long. 0·11; frontis lat. 0·07; chelip. dext. long. 0·17 poll.

Hab.—In sinu "Kagosima"; e fundo nigro-arenoso, prof. quinque org.

350.—EUPAGURUS ACANTHOLEPIS, nov. sp. Dens rostriformis obsoletus. Annulum ophthalmicum apertum, bracteoliferum, bracteola sub-bifurcata. Oculi graciles, pedunculos antennarum superantes, quam frontis lat. non breviores, extrorsum curvati, corneis non dilatatis; squamulis parvulis, apice bi-dentatis. Aciculum parvum. Pedes graciles, sparsim longe hirsuti. Chelipedes superne spinulosi, (dexter major) manibus paullo depressis, spinulis triseriatis; carpis superne paullo canaliculatis. Pedes 2di 3tiique paris chelipedes superantes, dactylis non contortis, compressis, fere falciformibus, unguiculis gracilibus. Abdomen latere dextro basi inferiore processu conica instructum apice corneo. Speciminis unici (junioris?) long. 1; carap. long. 0·21; frontis lat. 0·12; chelipedis long. 0·35; ped. amb. dextri long. 0·51 poll.

Hab.—In portu Jacksoni Austr.; e fundo argillaceo prof. 8 org. acceptus.

GALATHEIDEA.

351. GALATHEA AUSTRALIENSIS, nov. sp. Fœminæ carapax retrorsum latus, strigosus, strigis sat longe ciliatis; regione gastrica modice circumscripta, antice bi-spinulosa. Margo lateralis octo-spinosus, spinis supra infraque antennam inclusis. Rostrum latum, triangulare, superficie dense pubescens, margine utrinque quadridentatum, dentibus longis acutis, spiniformibus. Chelipedes sat robusti, superificie superiore scabrosi et setosi, marginibus pauci-spinosi; digitis depressis non hiantibus, intus 1–2 dentatis, dentibus levibus. Carapacis long. 0·29; lat. 0·215; rostri long. 0·09; chelipedis long. 0·56 poll.

Hab.—In portu Jacksoni Australiensi, in fundo limoso prof. sex org.

352. GALATHEA LABIDOLEPTA, nov. sp. Descr. *maris*. Carapax sat brevis, antice augustatus, strigosus, strigis pubescentibus; regione gastrica non circumscripta, antice spinulis duabus armata. Margo lateralis octospinulosis, spinulis supra infraque antennam inclusis, spinulis minutis. Rostrum longum, triangulare, acutum, utrinque quadridentatum, superficie pubescens. Margo supra-orbitalis integer, angulo externo acuto. Chelipedes sat robusti, superficie superiore æqualiter scabrosi, spinulis setosis; marginibus pauci-spinosis. Manûs palma crassa, digiti angusti, recti, nec hiantes nec dentati.

Hab.—Ad Promont. Bonæ Spei.

353. GALATHEA ORIENTALIS, nov. sp. Carapax sat augustus, antice minuens, strigosus, brevissime pubescens, regione gastrica non circumscripta, antice bispinulosa. Margo lateralis sex-dentatus, spina supra-oculari inclusa. Rostrum grande, sat latum, nudum, utrinque 4-dentatum, dentibus acutis, dente basali minuto. Chelipedes maris longi crassiusculi, spinulosi, sparsim hirsuti, setis longis; carpo intus spina una magna armato; manu sat depressa, aspera; digitis vix hiantibus, dactylo intus paullo bidentato. Merus pedum ambulatoriorum sat augustus, margine superiore confertim spinulata, spinulis minutis æqualibus. Carapax ruber, medio albo-vittatus; pedes pallide luteoli. ♂ Carap. long. 0·26; lat. 0·19; rostri long. 0·99; chelip. long. 0·60 poll.

Hab.—In freto "Ly-i-moon" prope "Hong Kong"; fundo conchoso, org. 25.

354. GALATHEA ACANTHOMERA, nov. sp. *G. orientali* affinis, dentibus rostri basalibus majoribus. Pedes ambulatorii eis *G. spinosirostris* similes, superne pilosi, setis fasciculatis plumosis: mero paullo dilatato, margine superiore spinulis robustis ad 11 armato, latere posteriore valide strigoso. Color griseus. Carap. long. 0·22; lat. 0·18; rostri long. 0·07 poll. *G. spinosirostri* affinis, rostro longiore.

Hab.—Ad insulas "Bonin"; inter corallia ad prof. 1 org.

355. GALATHEA PUBESCENS, nov. sp. Carapax convexus, æqualis, strigosus, strigis sat longe ciliatis vel pubescentibus. Regio gastrica non bene circumscripta, antice trispinulosa. Margo lateralis sex dentatus. Rostrum longum valde pubescens, triangulare, acutum, utrinque quadridentatum, dentibus acutissimis longitudinaliter porrectis. Chelipedes lineares, gracillimi sparsim setosi et spinulosi; digitis depressis parallelis nec hiantibus nec dentatis. ♀ Carap. long. 0·12; rostri long. 0·08 poll.

Hab.—In portu "Hakodadi" et ad insulam "Ousima;" in fundis sabulosis prof. 25–35 org.

356. GALATHEA SUBSQUAMATA, nov. sp. Carapax depressus; regionibus gastrica et hepaticis non bene circumscriptis; strigis non numerosis fere nudis in medio valde profundis; strigis antice lateraliterque undulatis, quasi squamiformibus. Regio gastrica spinulus ad 10 sparsis armata. Margo lateralis septem-dentatus. Rostrum bene triangulare, utrinque dentibus acutis quatuor armatum. Chelipedes mediocres, digitis depressis parallelis, nec hiantibus nec dentatis. ♀ Carap. long. 0·26; lat. 0·16; rostri long. 0·10; chelipedis long. 0·56 poll.

Hab.—Ad insulam "Ousima."

357. GALATHEA GRANDIROSTRIS, nov. sp. Corpus superne purpureo-fuscum, albo bi-vittatum. Carapax superficie æqualis, strigosus, strigis ciliatis numero ad 12. Regio gastrica non circumscripta. Margo lateralis novem-denticulatus. Rostrum grande elongato-triangulare, superficie pubescens subtiliter asperum; marginibus obsolete serrulatis, dentibus minutis utrinque sex distantibus. Chelipedes robusti, purpureo-fusci, albo uni-vittati, transversim scabrosi, mero carpoque intus ad apicem 2–3 spinosis; manu absque spinulis; digitis modice pilosis non hiantibus. Carap. long. rostro incluso, 0·342; lat. 0·19; rostri long. 0·16; rostri lat. ad basim 0·06; chelipedis long. 0·53 poll. *G. longirostri* et *G. eleganti* affinis, sed rostri grandiore.

Hab.—In sinu "Kagosima" Japoniæ; fundo arenoso org. 5.

358. MUNIDA JAPONICA, nov. sp. Carapax oblongus. Margo lateralis medio 5-spinulosus. Spinæ ad basin antennarum non majores. Suturæ laterales et margines abdominis penicillizeræ. Frons tricuspis, spinis aculeiformibus, mediana quam laterales duplo longior. Regio gastrica superficie utrinque trispinulosa et antice serie transversa spinularum numero ad 13 armata; spinulis duabus medianus maximis paullo remotis. Chelipedes prælongi, recti, subcylindrici, scabriculi, sparsim spinulosi; digitis longis, gracilibus, manûs sinistræ ad basim hiantibus. Antennæ externæ chelipedibus paullo longiores. ♂ Carap. long. 0·48; lat. 0·28; rostri long. 0·18; chelip. long. 1·30 poll.

Hab.—In sinu "Kagosima" Japoniæ; e fundo conch. org. 20.

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Description of New Genera and Species of North American Lizards in the Museum of the Smithsonian Institution.

BY SPENCER F. BAIRD.

Family IGUANIDÆ.

EUPHRYNE, Baird.—Body very heavy and clumsy. Tail shorter than the body; very thick and conical. Scales very small, but imbricated and angular throughout. A median dorsal band of about 20 rows, and a largepatch on the sides of scales larger than the rest. Infra-orbitals in a series of small, nearly equal plates. Supra-cephalic plates all small, least on the outer part of the supra-orbital region. Upper labials rectangular, not imbricated. Posterior molars with five cusps; palate toothed. Claws very thick and stout, anterior much the longer.

Euphryne obesus, Baird.—Width of head nearly equal to distance from nose to ear. Tail shorter than the body. General color of the young, olive green, with five broad transverse bars above from head to base of tail, and about as many on the tail; these rings yellow, dotted with red. Beneath pea green dotted with black. With increasing age, the bands become obsolete and disappear, the general color becoming reddish olive.

The largest and heaviest of American *Iguanidæ*, sometimes exceeding a foot in length. Abundant in the canons of the Colorado, of California, collected by Maj. Thomas, Mex. Boundary Survey, and Lt. Ives' Expedition. Type No. 4172

Crotaphytus reticulatus, Baird.—Infra-orbital chain in a series of 6 or 8 nearly equal plates. Scales on the gular fold much smaller than those between the fore legs. Above ashy gray, with a hexagonal reticulation of lighter, the interstices here and there dark brown. Chin and throat reticulated. Neither black collar nor light spots. More closely related to *Crotaphytus collaris*, than to *Crotaphytus* (*Gambelia*) *wislizenii*.

Hab.—Laredo and Ringgold Barracks, Tex. Mex. Boundary Survey. J. H. Clark and A. Schott. Type 2692.

Uta symmetrica, Baird.—Larger dorsal scales in four regular series, two on either side of the median smaller ones. Head short, depressed, one and a half times as wide as deep. Tail one and a half times the head and body. General color light brown above, the belly white. Sides with broad transverse bands of blackish. Size of *U. ornata*.

Hab.—Fort Yuma, Cal. Mex. Boundary Survey. A. Schott. Type No. 2760.

Uta schottii, Baird.—Dorsal scales and size as in the last. Head pointed, narrow, nearly or quite as high as wide. General color nearly black, scarcely lighter beneath. Back with small blue spots. Tail banded laterally with the same.

Hab.—Sta. Madelina, Cal. Mex. Boundary Survey. A. Schott. Type No. 2761.

UMA, Baird.—Ears distinct. very long infra-orbital plate. Palate without teeth. Outer face of upper labials plane and broadly vertical; the labials themselves much imbricated, and very oblique. Scales of body above equal, much smaller than ventral ones. Inter-orbital space with two series of plates. Claws very long, slender and straight. Sides with a round black spot. Tail? (broken off.)

Uma notata, Baird.—Head about two-fifths the head and body. Above light pea green, spotted with darker green. Beneath white. Head and body about two inches long.

Hab.—Mohave Desert. Lt. Williamson, Dr. A. L. Heermann. Type No. 4124.

Holbrookia approximans, Baird.—Similar in size and general character to *H. maculata*. Tail shorter than body. Two small vertical indigo black patches on the side of belly, entirely visible from below; with a light blue areola.

Central point of belly about opposite the middle point between the two patchse. No light stripe on side of neck. Upper parts and sides gray, sprinkled with whitish. Head broad, very convex above. Hind foot about one-third the head and body.

Hab.—Lower Rio Grande. Mex. Boundary Survey, and Lt. Couch.

Sceloporus floridanus, Baird.—Cephalic plates smooth. Three series of supra-orbitals, a broad central one, and an external and internal of very small plates. Scales large, rough. 33 oblique rows of dorsal scales from head to anns. Scales on inside of tibia carinated. Free portion of longest hind toe exceeding the cephalic plates. Color above greenish yellow, with two broad yellow stripes, five scales apart. Back with distinct transverse blackish bars. Larger than *S. undulatus*.

Hab.—Pensacola, Fla. Dr. Jeffries, U. S. N. Type No. 2874.

Sceloporus ornatus, Baird.—Dorsal scales in about 64 oblique series, with but slight carination, mucronation and denticulation. Femoral pores 12. A well marked black cervical collar, complete above, and margined with yellowish. Color dark green above, nearly black towards the median line. Back with small yellowish spots.

Hab.—Patos, Coahuila, Lt. Couch. Type No. 2845.

Sceloporus longipes, Baird.—Similar to *S. occidentalis*, in general characters of shape, coloration and smoothness of the scales on inside of tibia. Limbs and tail much lengthened. Free portion of hind toe longer than the cephalic plates. The hind leg as long as the body and neck. Hind foot contained about two and a half times in the head and body.

Hab.—Fort Tejon, Cal. John Xantus. Type No. 4358.

Sceloporus couchii, Baird.—General appearance of *S. marmoratus*, Hall. Cephalic plates smooth. Scales very small. About 80 oblique dorsal rows from head to tail. Femoral pores 25. Color above dark green, with two lateral light stripes, separated by 18 rows of scales. Back with irregular spots. Sides with a white band from groin. An obsolete dark indigo patch on each side the belly, widely separated below. Sides of jaw banded transversely with blue and whitish. A subcircular indigo patch in front of shoulder, surrounded by light blotches.

Hab.—Santa Caterina, N. Leon. Lt. Couch. Type No. 2739.

Anolis cooperi, Baird.—Cephalic plates smooth. Inter-orbital ridges running to the side of the rostrum, posterior to the nostrils which are rather lateral. Digital pallets inconspicuous. A few central dorsal rows of scales abruptly larger than the rest, but the lateral all much smaller than the ventral. General color grayish above. Less than *A. carolinensis*.

Hab.—California. Dr. J. G. Cooper. Type No. 4165.

Family GECKOTIDÆ.

Sphæriodactylus notatus, Baird.—Scales on back and sides large, equal, strongly carinated; those on belly smaller, smooth, hexagonal. Above light brownish yellow, uniformly dotted above with reddish brown, most distinct on the head, least so on the belly.

Hab.—Key West, Fla., Prof. Agassiz and Prof. W. H. B. Thomas. Type No. 3215.

Stenodactylus variegatus, Baird.—Head very broad. Hind foot contained six times in head and body. Above brownish yellow, with irregular small blotches of light reddish brown, sometimes in broad transverse bands. Edges of eyelids and whole under surface opaque white.

Hab.—Rio Grande and Gila Valleys. Mex. Boundary Survey. A. Schott. Type 3217.

Family XANTUSIDÆ.

General form lacertian. No crests nor spines. Head with very large,

polygonal plates. Scales of back small, granular; those of belly large, square, in transverse series. Tongue broad, linear, not retractile, firmly attached except at tip, which is only slightly notched, the base not emarginate. Surface of tongue with a series of oblique converging ridges on each side. Teeth simple, pleurodont. Digits with one series of transverse smooth lamellæ beneath.

XANTUSIA, Baird.—Body slender; cylindrical. Femoral pores. Three folds on the throat, the anterior connecting the ears inferiorly and encircling the head. Pupil vertical. No eyelids.

Xantusia vigilis, Baird.—Hind leg extended forwards, reaches the first gular fold, and is contained about $2\frac{3}{4}$ times in head and body. Claws small. Color above dark brownish yellow, varied with blackish spots on single tubercles. Young vermiculated with yellowish on a brown ground. A yellowish line on each side of the neck, with two others on the nape, making four parallel ones. Under parts whitish. Head and body about two inches long.
Hab.—Fort Tejon, Cal. John Xantus. Type No. 3063.

Family LACERTIDÆ.

Cnemidophorus inornatus, Baird.—Scales on the gular fold, smaller than those on the breast anteriorly, and scarcely larger than those on the middle of the chin. Scales of back tubercular and elevated. Hind feet about two-fifths the head and body. General color light greenish olive, paler beneath. No lines on the body.
Hab.—New Leon. Lt. Couch. Type No. 3032.

Cnemidophorus octolineatus, Baird.—Gular fold as in the last. Hind foot not two-fifths the head and body. Scales of back depressed. General color light greenish olive, paler beneath. Back with eight equidistant and approximated light lines.
Hab.—New Leon. Lt. Couch. Type No. 3009.

Family ZONURIDÆ.

Gerrhonotus webbii, Baird.—Tail $2\frac{1}{2}$ times the head and body. Scales strongly carinated. Dorsal scales in 48 transverse rows. Body encircled by 26 rows of scales, of which 12 are ventral. Hind feet longer than from snout to ear. Above leaden olivaceous brown, lighter beneath. Back with ten or twelve blackish bars, bordered in front by brownish or reddish yellow.
Hab.—Near San Diego, Cal. Dr. Webb. Type No. 3078.

Gerrhonotus infernalis, Baird.—Dorsal scales carinated in 16 longitudinal rows; ventral in 12. Nasal plate in contact with the 2d labial only. Tail twice as long as head and body. 51 transverse rows of scales from head to tail. Color clear light olive, with 8 cross bars of dusky. Beneath yellowish, marbled faintly with dull olive. Head plain.
Hab.—Devil's River, Tex. Mex. Boundary Survey. Dr. Kennerly. Type No. 3090.

Gerrhonotus olivaceus, Baird.—No single frontal. A series of three pairs of plates between the vertical and rostral, becoming successively smaller. Two post-nasals; one loral. 39 transverse rows of scales on back from head to tail. 12 longitudinal rows above; the 6 central, strongly carinated. Color dark olive green, with a series of faint dusky bars. Beneath greenish white.
Hab.—Near San Diego. Mex. Boundary Survey. A. Schott. Type No. 3096.

Lepidosternon floridanum, Baird.—Body as thick as a large goose quill. No limbs. A large pentagonal plate on the head above, encircled by nine others, the rostrum ending in a broad horizontal crescent, overhanging the mouth. No ears nor visible eyes. Tail contained 18 times in the body, much depressed, its upper surface with large tubercles. Color white in alcohol.
Hab.—Micanopy, Florida. Dr. J. B. Barratt. Type No. 3202.

Family SCINCIDÆ.

Plestiodon leptogrammus, Baird.—Two post-nasals, the posterior one behind and above the much smaller anterior. Color black, with five narrow, white lines, the two lateral along the middle of single rows. Median light line not bifurcated.

Hab.—Platte River Valley. Lt. Warren, Dr. Hayden. Type No. 3119.

Plestiodon inornatus, Baird.—Two post-nasals of equal size, one above the other. Hind leg applied three times forwards, reaching the ear.

Hab.—Sand Hills of Platte. Lt. Warren, Dr. Hayden. Type No. 3110.

Plestiodon tetragrammus, Baird.—One post-nasal plate; post-frontal and internasals separated by the post-nasal. Five supra-orbitals. Dorsal scales of equal width. Light olive green above; sides with two yellowish lines, separated by six rows of darker olive scales. Upper labials pure yellowish. Body encircled by about 28 rows of scales. No dorsal stripe.

Hab—Lower Rio Grande. Dr. Berlandier, Lt. Couch. Type No. 3124.

Plestiodon egregius, Baird.—One post-nasal plate; post-frontal and inter-nasals separated by the post-nasal. Four upper labials. Ears very small. Two central dorsal rows largest. Body cylindrical. Color reddish ash, with two or three white lines on each side, margined with dusky, sometimes a third; all these along the centres of single rows of scales. Upper lateral lines separated by two plain rows. Body encircled by about 22 rows of scales.

Hab.—Indian Key, Fla. G. Wurdemann. Type No. 3128.

Plestiodon septentrionalis, Baird.—One post-nasal plate which does not separate the inter-nasals and post-frontals. Color above olive, with four equidistant and equal dark stripes on adjacent half rows of scales. Two narrow white lines on each side, traversing the centres of single rows, and margined above and below by black. Upper lateral light stripes separated by six rows of scales. Beneath light greenish.

Hab.—Minnesota and Nebraska. Rev. S. W. Manney. Type 1356.

Remarks on the lower Cretaceous beds of Kansas and Nebraska, together with descriptions of some new species of Carboniferous fossils from the valley of Kansas river.

BY F. B. MEEK AND F. V. HAYDEN.

The Cretaceous system as developed in Nebraska, is clearly divisible into five distinct formations, which have, for the sake of convenience, been numbered 1, 2, 3, &c., from the base upwards. Although at first entertaining some doubts as to whether No. 1, or the lowest formation, might not be older than Cretaceous, we always placed it provisionally, in our published sections, in the Cretaceous system. More recently, after a careful review of the subject, we became satisfied from the modern affinities of numerous dicotyledonous leaves found in this formation, that we hazarded little in regarding it as a settled question that it could not be older than Cretaceous, and so expressed ourselves in our paper read before the Academy of Natural Sciences, Philadelphia, March, 1858.

The reference of this formation to the Cretaceous, however, was not without some exceptions generally admitted, for Professor Jules Marcou, in his work on the "Geology of North America," page 143, refers it to the New Red Sandstone, and in a subsequent publication,* he places it in the Jurassic; while some investigators in this country also inclined to the opinion that it must be Triassic. In the midst of these conflicting opinions, although satisfied we were right, we wished, in order to remove all doubts from the minds of others, to have the opinion of some good authority in fossil botany, (a department of palæontolo-

*Notes pour server a une description geologique des Montagnes Rochenses, page 20.

gy to which we have given little attention,) respecting the fossil leaves on which we mainly based our views in regard to the age of this formation. Consequently, we sent outline sketches of a few of them to Professor Oswald Heer,* the distinguished authority in fossil botany at Zurich, Switzerland, informing him they were from a formation we regarded as Cretaceous and requesting him to let us know to what genera and geological epoch he would refer them. This letter was sent to Professor Heer in August last, before we started to Kansas, and on our return, in the latter part of October, we were disappointed at finding no reply from him. After waiting some days longer, and receiving no answer from Professor Heer, we concluded our letter had either failed to reach him, or that he was unwilling to express an opinion based upon mere sketches of the leaves; consequently we submitted the whole to Dr. Newbury, who had then returned to Washington, and in whose opinion on this subject we have the fullest confidence.

After examining the specimens, Dr. Newbury gave us a written statement bearing date Nov. 12, containing a list of the genera to which he had referred the leaves, together with some interesting remarks and generalizations, in which he expressed the opinion that they are certainly Cretaceous, some of them belonging to genera peculiar to that epoch, and that the whole belong to more highly organized plants than anything known in the Triassic or Jurassic flora.

Knowing as we did that the rocks from which these plants were obtained, —beyond all doubt,—hold a position beneath, at least, eight hundred feet of Cretaceous strata, containing great numbers of *Ammonites, Scaphites, Baculites, &c.*, it of course never once occurred to us that any person might suppose it Tertiary.

About the thirteenth of November we sent on to the American Journal of Science, a communication containing Dr. Newbury's list of the genera to which he had referred our plants, with some extracts from his remarks, all of which will appear in the January number of that Journal. Some two or three weeks after we had corrected the last proof of this paper, we received (13th of Dec.) a letter from Professor Heer, bearing date of Nov. 20, in which he informed us that our letter had reached him at a late date, in consequence of his absence from home, and that after his return, other engagements had prevented him from replying sooner. In this letter Professor Heer, in accordance with our request, sent us a list of the genera, as near as it was possible for him to make them out from hastily drawn sketches, and also kindly furnished brief diagnoses of the species,† stating at the same time that although one of the outlines resembles a Cretaceous genus (Credneria,) the nervation being obscure, and the others being more like Tertiary forms than anything known in the Cretaceous of the old world, he was inclined to the opinion that they are Tertiary.

Along with Professor Heer's letter, we also received a printed pamphlet, entitled "*Letters on some points of the Geology of Texas, New Mexico, Kansas and Nebraska;* addressed to Messrs. F. B. Meek and F. V. Hayden, by Jules Marcou." In this pamphlet Professor Marcou quotes Professor Heer's conclusions in regard to our fossil plants, and expresses the opinion that No. 1, of the Nebraska section, is both Miocene and Jurassic, or in other words, that we have included in it strata belonging to each of these two widely different geological epochs.

Having a very high regard for Professor Heer's opinions on any question in fossil botany, where he has had an opportunity to examine the specimens themselves, or to study good figures and descriptions, we are quite sure, had the whole collection been submitted to him, instead of mere sketches of a few of the species, his opinion would have been very different. At any rate, we can assert with the fullest confidence that it is absolutely *impossible* that this formation, or any part of it, can be Tertiary, for we know it passes, as already stated, beneath at least eight hundred feet of Cretaceous strata. This is not mere conjecture, nor an inference drawn from having seen this formation under cir-

* Our friend Dr. Newberry was then in New Mexico.

† For descriptions of these plants by Prof. Heer, see the last two pages of this paper.

cumstances leading us to *suppose* from the dip of the strata, that it must pass beneath the Cretaceous if continued in a given direction at the same angle of inclination, but from the fact that it has actually been seen, directly beneath the other Cretaceous rocks, not merely at one place, and by one observer, but by several persons at numerous localities.

In order to satisfy others we are not mistaken in this, we will give a few of the many facts in our possession, bearing on this question. In the first place, we would remark that the farthest point towards the south at which we have seen this formation, is near Smoky Hill river, in Kansas, latitude 38° 30′ north, and longitude 97° 30′ west. Here we found it forming the upper part of several isolated elevations known as the "Smoky Hills," at an altitude of about 1200 feet above the Missouri at Fort Leavenworth. At this locality, however, we saw no rocks overlying it, and consequently have no *stratigraphical* evidence that it is the same rock seen by us at other localities under Cretaceous beds; but our lithological and palæontological evidence is quite conclusive on this point, for this rock in color, composition, and all other respects, is undistinguishable from No. 1, of the Nebraska section, as seen near the mouth of Big Sioux river on the Missouri, and contains numerous fossil leaves, some of which are identical with those occurring in No. 1, at the last mentioned localities. Amongst these leaves Dr. Newberry has also identified at least one genus (*Ettingshausiania*) peculiar to the Cretaceous system.

Bearing in mind that all the rocks here have a gentle but uniform inclination or dip to the north west; and that the formation under consideration consists of red and yellowish sandstones, and various colored clays, with generally more or less impure lignite and ferruginous concretions, we will be prepared to recognize it at lower and lower elevations as we proceed northward.

Without undertaking to mention in detail the intermediate exposures, we will pass northward at once to localities where it has been seen beneath Cretaceous rocks by three different observers at various times; this is near the Kansas and Nebraska line—latitude 40° north, and in the vicinity of 97° of west longitude. Here at an elevation of about seven hundred feet above the Missouri at Fort Leavenworth, or some five hundred feet below the level of the exposures mentioned at the Smoky Hills, our deceased friend, Mr. Henry Pratten, saw near Wyeth's creek, in 1853, the following exposures in descending order;

1st. Slope, thickness not given.

2nd. Yellow and whitish limestone filled with casts of *Inoceramus*, referred by him to *I. myteloides* = *I. problematicus*.	No. 3, Nebraska Sec.
3rd. Slope, thickness not given.	No. 2, Nebraska Sec.
4th. Red ferruginous sandstone with leaves of dicotyledonous trees.	No. 1, Nebraska Sec.

A short distance west of this exposure Dr. J. G. Cooper informs us he saw outcrops of a red sandstone in the valleys at about the same elevation; and above this, exposures of dark gray laminated clay answering exactly the description of No. 2, of the Nebraska section, while above the latter, near the tops of the hills, he met with outcrops of light colored limestone containing numerous casts of *Inoceramus*.

At other localities not far to the southwest of the foregoing, Mr. Hawn saw exposures of light colored limestone forty-five feet in thickness, containing great numbers of *Inoceramus* which we referred, from specimens sent by him, to *I. problematicus*. * Below this there was a slope of twenty-seven feet in which he saw no exposures, while still lower he observed outcrops of dark ferruginous and yellow sandstone, and various colored clays with impressions of leaves

* It is with some doubt we have referred this species to *I. problematicus*; it is the same species described by Dr. Schiel in the second volume of the Pacific Rail Road Report, page 108, plate 3, figure 8. It is rather longer on the hinge than is common in *I. problematicus*, from which it may be distinct. We always refer to this shell in speaking of *I. problematicus*.

resembling, as he supposed, those of oaks and willows. (See his section published by us in the Proceedings of the Academy of Natural Sciences of Philadelphia, May, 1857.)

Proceeding northward from the last mentioned localities, we find on reaching the Loup fork of Platte river, near the eastern limits of the Pawnee reservation, outcrops of the light colored *Inoceramus* beds already mentioned, (No. 3, Nebraska section,) near the water's edge; and at the mouth of Loup fork, on the Platte, the red sandstone No. 1, so often referred to, crops out near the river margin, while the *Inoceramus* beds are seen in the bluffs above it. Going down the Platte in a direction nearly contrary to the dip of the strata, we find this sandstone rising up so as to form near the mouth of Elk Horn river, bluffs some sixty feet in height. Here it seems to rest directly upon Carboniferous rocks. Continuing on down the Platte, we find this red and yellow sandstone rising higher and higher in the hills until we come within five or six miles of the Missouri, where it is seen with its base elevated near sixty feet above the Platte; and there are probably outlines of it between that point and the Missouri at greater elevations. So that we here find the same formation which at Smoky Hill river is elevated about twelve hundred feet above the level of the Missouri at Fort Leavenworth, and seven hundred feet above the same horizon near Little Blue river, has by the gradual north-western dip of the strata, sunk to within about one hundred feet of the Missouri at the mouth of the Platte.*

Ascending the Missouri from the localities just mentioned, we see occasional exposures of the upper Carboniferous rocks, which gradually sink lower and lower until they pass beneath the river near Florence, to be succeeded by the reddish and yellow sandstones, &c., of No. 1,—(Nebraska section.) Above this, occasional exposures of this formation are seen with its characteristic fossil leaves, along the river; and at several localities, some thirty miles below the mouth of Big Sioux river, it forms perpendicular escarpments of yellowish sandstone rising from the water's edge to an elevation of about eighty feet; while at a higher point, back on the summits of the Hills, the same calcareous beds are seen, containing *Inoceramus problematicus*. Here at a quarry in the sandstone (formation No. 1,) some twenty feet above the level of the river, one of us (Dr. H.) collected a large number of fossil leaves, some of which are identical with species found by us in this rock at the Smoky Hill locality already mentioned. The sketches of leaves sent by us to Professor Heer were mostly drawn from specimens collected at this locality.

At the mouth of Big Sioux river a low bluff of this formation, not more than fifteen or twenty feet in height, is seen, and on the hills back a little from the river at a higher elevation the same *Inoceramus* bed crops out at several places, and is used for making lime. At another locality, about eight or ten miles up the Big Sioux river, which comes in from the north west, one of us (Dr. H.) saw No. 1, containing its characteristic fossil leaves, *directly beneath* No. 2, of the Nebraska section. This exposure presented the following beds in the descending order:

1st. 20 feet exposed of light gray limestone and marl, containing *Inoceramus Problematicus.*	No. 3 of Nebraska Sec.
2d. 45 feet dark laminated clay with ferruginous concretions containing fish scales	No. 2 of Nebraska Sec.
3d. 15 feet exposed above the edge of the water, consisting of yellowish friable sandstone, with a thin bed of impure lignite above, and some layers of various colored clay below, containing dicotyledonous leaves.	No. 1 of Nebraska Section.

* The gradual descent of the Missouri river makes its surface at Fort Leavenworth, about three hundred feet lower than at the mouth of the Platte, hence the exposures of No. 1, seen at the latter locality, one hundred feet above the Missouri, are some four hundred feet above the level of the Missouri at Fort Leavenworth, and of course about three hundred feet lower than the Little Blue river outcrops. The dip, however, is greater than this would indicate, for the strata incline towards the north *west*, while the mouth of Platte river, is north *east* of the Blue river localities.

One of the sketches of a long lanceolate leaf, like some of the existing species of Salix, sent by us to Prof. Heer, was drawn from a specimen collected from one of the lower sandstones here.

Again at another locality on the Missouri, about thirty miles above the mouth of Big Sioux river, No. 1, was seen by one of us (Dr. H.) only five feet above the water's edge, and *immediately overlaid* by No. 2, of the Nebraska section, containing its characteristic species of *Ammonites;* and directly over the latter, he saw No. 3, containing *Inoceramus Problematicus.* * At this locality he also found in No. 1 some of the same fossil leaves characterizing it at the other places already mentioned.

On ascending the Missouri, above the last named locality, formations No. 2, 3, 4 and 5 are seen to sink at the same gradual uniform rate of dip, in regular succession, beneath the level of the Missouri; so that on reaching Heart river, we find the top of No. 5 nearly down on a level with the water's edge, and a short distance above that locality it passes out of sight, to be succeeded by the Great Tertiary Lignite basin of the upper Missouri, which overlaps it on the hills along the river for some distance below.

From the foregoing statement, we think it will be clearly understood, that formation No. 1 of the Nebraska section holds a position *beneath* the other cretaceous deposits of that region; while the occurrence in it of highly organized angiosperm dicotyledonous plants proves that it cannot be older than Cretaceous. It may be argued, however, that it may in part be Cretaceous and part Tertiary, or at any rate that *some* of these leaves may have been obtained from overlying Tertiary beds which we have confounded with the Cretaceous below. This, however, is impossible, simply because specimens of nearly all the species found at the various localities, have been quarried from the same bed at Blackbird Hill, and the whole, not a part only of this formation, passes beneath all the other Cretaceous rocks of the north west. In addition to this, we have extensive collections of plants from the Tertiary of Nebraska, not a single species of which is identical with those from No. 1.

When we stated in some of our papers that it was possible we might have included in this formation beds not belonging to the Cretaceous, it was not because we thought any part of it might be Tertiary, but because we suspected some of the lower beds referred to it in Kansas might possibly be Jurassic; and we are even now prepared to believe it may yet be found to repose on Jurassic rocks in that Territory, as it does at the Black Hills.

Descriptions of new Carboniferous Fossils.

The carboniferous species described in the following pages of this paper, were collected by us in Kansas, from the upper coal measures, extending up to the base of the Permian, through a series of strata holding a higher stratigraphical position than most of the coal deposits of the west. We found this series of rocks abounding, at places, in organic remains, mostly of the same species occurring in the coal measures of Missouri, along with a few others approximating to Permian forms.

Amongst our collections from these rocks we have identified most of the carboniferous species figured by Prof. Marcou in his work on the geology of North America, which represents a group of fossils characteristic of our western coal measures. We had hoped to have ready for this paper some remarks on the upper carboniferous and Permian rocks of Kansas, illustrated by many local sections, showing the range of the various fossils, but we have, for want of time, been compelled to defer these for another occasion.

Fusulina cylindrica, Fischer.

In our collections from the upper members of the Coal Measures of Kansas, we have great numbers of *Fusulina*, many of which agree so very nearly with figures

* It is of course unnecessary for us to inform geological readers that a rock overlaid by strata containing *Ammonites* and *Inoceramus*, cannot be Tertiary, because these genera became extinct at the dawn of the Tertiary epoch.

and descriptions of the species above cited, that we have thus far failed to find any reliable differences by which they can be distinguished. If these are really identical with *F. cylindrica* it not only proves that species to have had an immense geographical range, but to have existed through vast periods of time, since, according to Murchison de Verneuil and Keyserling, it is widely distributed in Russia, where it only occurs in the upper part of the lower carboniferous or mountain limestone series; while in Kansas it ranges through a great thickness of upper carboniferous rocks, much of which appears to be even more modern than most of the western coal measures.

F. cylindrica var. *ventricosa.*

Along with the forms above mentioned, which we regard as probably identical with *Fusulina cylindrica*, we find in some of the upper members of the coal measures in Kansas, others differing so much in size and form, that we even suspect they may possibly belong to a distinct species. These we propose to designate for the present as a variety of *F. cylindrica*, under the name of *ventricosa*, which will be a good specific name, should they prove to be distinct. They differ from *F. cylindrica*, as figured in Murchison de Verneuil and Keyserling's work on the geology of Russia, in being much larger, some of them measuring nearly half an inch in length, and 0.20 inch in diameter at the middle; they are also proportionably much more ventricose, and differ in being usually less symmetrical, in consequence of one side being more gibbous than the other. The transverse grooves marking the position of the septa also pass across the central ventricose region with more of a lateral curve than in the Russian specimens; while the edges of the septa themselves, when the outer shell is removed, are seen to be apparently less distinctly waved. Again the aperture in all our specimens is so very narrow as to appear entirely closed.

In the description of the Russian specimens it is said that young individuals are proportionably so much shorter and more fusiform than the old, that they might readily be mistaken for a different species; exactly the reverse, however, is the case with our Kansas specimens, the smaller individuals being more nearly cylindrical, while they appear to have become more gibbous with age, until in some cases they might be described as subglobose.

Locality and position.—This variety is found at Juniata on Blue river, and at Manhattan on the Kansas, far above all the coal beds yet discovered in Kansas.

ORTHISINA CRASSA, n. sp.

Shell thick, of medium size, subquadrate, rather compressed; hinge, generally a little less than the greatest breadth of the shell, but sometimes equalling it. Front broadly rounded; lateral margins more or less arcuate,—in some examples nearly straight. Surface ornamented by numerous straight radiating striæ, numbering near the beaks about thirty to forty on each valve, but increasing by the implantation of others between them, from one hundred, to about one hundred and twenty four, around the margin; these striæ are crossed by numerous fine elevated concentric lines, which are not only quite distinct in the spaces between, but on well preserved specimens are prominent on the striæ, to which they impart a sub-crenulate aspect, as seen by the aid of a lens. Adult specimens also generally have several strong concentric imbricating marks of growth.

Larger or ventral valve nearly flat, cardinal edge sloping a little towards the lateral margins; beak not very prominent or distinct, not incurved, sometimes a little twisted to one side; area rather broad, flat, and inclined obliquely beyond the cardinal edge of the other valve; deltedium thick and prominent.

Smaller or ventral valve moderately convex in the middle, concave on each side of the umbo, which is generally depressed: mesial tooth strong, and prominent, bifid. Length of a specimen a little above the average size 1·25, inch, breadth, 1·30 inch: transverse diameter of the two valves

Locality and position—Leavenworth City, K. T., in Coal Measures.

CHONETES MUCRONATA, n. sp.

Shell rather large, semicircular, having its greatest breadth on the cardinal border, which is usually extended into mucronate angles. Surface ornamented by a few sub-imbricating concentric marks of growth, crossed by fine regular closely set striæ, about one hundred and fifty of which may be counted around the border, where eight or nine of them occupy the space of one line.

Larger valve depressed, having generally a broad, shallow, undefined, mesial sinus extending from the front towards the beak. Ears sometimes separated from the central region by very shallow depressions, and often slightly curved upwards at the extremities. Cardinal margin sloping a little from the beaks, on each side of which it is ornamented by from eight to eleven tubular spines, directed obliquely outwards. Area rather wide and, having a broad deltoid aperture, with elevated margins.

Smaller valve following nearly the curve of the other; beak and central region concave; ears flat; area rather broad, but narrower than the other, and rectilinear. Interior provided with a small very slightly projecting bifid median tooth, which nearly closes the aperture of the other valve. From the base of this tooth there are five radiating ridges, two of which are rather obscure, and extend obliquely outwards near the cardinal edge, while a third extends at right angles to the hinge, a little more than half way across towards the front of the valve. The other two ridges are much shorter, and occupy an intermediate position between this median ridge and the lateral one, and are directed obliquely forwards and outwards. The whole interior is more or less granulose, the granules near the border being much smaller than the others, and ranged in rows parallel to the striæ on the outside. Breadth of largest specimen 1.13 in.; length 0·62 inch.

This species is very nearly allied to *C. Smithii*, of Norwood and Pratten, to which we we were at first inclined to refer it; a careful examination, however, of a large number of individuals in all conditions of preservation, has satisfied us that the striæ of the shell now before us are always entirely destitute of the pits so characteristic of *C. Smithii*. Our shell is also much more extended on the hinge line, which terminates in more acute angles; while there are not unfrequently eleven, instead of ten tubes on each side of the beak.

Locality and position.—Near Fort Riley, K. T., Upper Coal Measures.

AXINUS (SCHIZODUS) OVATUS, n. sp.

Shell ovate, most gibbous slightly in advance of the middle; anterior extremity broader than the other, somewhat narrowly rounded; posterior end narrow and compressed, obliquely truncate above, sub-angular below. Base semiovate in outline, the most prominent part being in advance of the middle; cardinal edge very short, straight and horizontal, meeting the obliquely truncate posterior margin at an angle of about one hundred and thirty degrees. Beaks located slightly in advance of the middle, elevated, and incurved at right angles to the hinge, rather distinctly angular down the posterior slopes and obliquely towards the lower part of the posterior extremity. Surface unknown. Length 0·65 inch; heighth 0·45 inch; transverse diameter of the two valves 0·20 inch.

This species appears to be about intermediate between *Schizodus truncatus*, King, and *S. rotundatus*, Brown, as represented by figures 27 and 30, plate xv., King's Permian fossils of England. From *S. rotundatus*, it differs in being more elongate, less broadly rounded in front, and much more obliquely truncate posteriorly; the hinge line is also shorter and more nearly horizontal. It differs from *S. truncatus* in the more nearly central position of the beaks, much shorter and less sloping cardinal edge; while its anterior extremity is more narrowly rounded.

Locality and position.—Cottonwood Creek, K. T., high up in Upper Coal Measures.

ALLORISMA ? ALTIROSTRATA, n. sp.

Shell oblong oval, very gibbous in the umbonal region ; beaks much elevated above the cardinal edge, incurved, and located over the anterior end. Posterior extremity more compressed, but apparently more or less gaping, rounded in outline, anterior end vertically subtruncate, somewhat gaping ; base nearly straight, or a little concave near the middle, rounding up towards the extremities. Cardinal border rather short, straight and inflected so as to form a moderately distinct, impressed area for the reception of the ligament. Surface of cast marked by concentric undulations, which are narrower, more regular, and distinct on the umbones and over their slopes, than towards the base and extremities. From the anterior side of the beaks, there is on each valve, an obscure sulcus descending obliquely and widening towards the middle of the base. Length 3·06 inch ; height from the base to dorsal margin 1·63 inch ; do. to highest part of beaks 1·74 inch ; greatest transverse diameter.

Having only seen an internal cast of this shell, showing neither the muscular nor pallial impressions, and giving no clue to the character of the hinge, there must remain some uncertainty respecting its generic relations. Its most marked peculiarity is the unusual elevation of the beaks, which gives it much the form of some of the Jurassic *Pholadomyas*. We know of no other shell from the whole Carboniferous System with which it can be confounded.

Locality and position.—Grasshopper Creek, K. T., Upper Coal Measures.

ALLORISMA SUBCUNEATA, n. sp.

Shell large, clavate, cuneate, gibbous in the anterior and umbonal regions, contracted and compressed posteriorly. Beaks depressed, incurved and removed about one eighth the length of the shell from its anterior extremity. Posterior end narrowly rounded, and apparently gaping a little; buccal end obliquely truncate above, rather narrowly rounded, and somewhat gaping below. Base nearly straight along the middle, curving up very gradually behind, and abruptly in front ; dorsal outline sloping slightly from the beaks towards the anal extremity. Surface of cast marked by more or less regular concentric undulations ; hinge long and straight ; lunule oval, not very well defined ; ligament area long and narrow, bounded on either side by a narrow obscure ridge, on the outside of which there is a long, parallel, shallow undefined sulcus. Anterior muscular impression lunate, the upper extremity curved back over itself so as to give the whole somewhat the form of the letter G ; posterior muscular impression, large, oval, ovate, or rhomboidal, located about one third the length of the shell from the posterior end ; pallial impression faint, having a deep angular sinus. Length 5·10 inch ; height 2·25 inch ; greatest thickness near the anterior end 1·70 inch.

This species is very similar to *Sanguinolites clava* of McCoy, but its ventral margin is straighter, its beaks rather more depressed, and its anterior border more narrowly rounded below the beaks. The lunette on the anterior side of the beaks, in our shell, appears to be less distinctly defined than is represented in Prof. McCoy's figure, while the anterior muscular impression in *S. clava* appears to be orbicular instead of lunate as in our shell.

Locality and position.—Leavenworth City, in upper coal measures.

ALLORISMA ? LEAVENWORTHENSIS, n. sp.

Shell very thin, oblong, subcylindrical behind, more compressed anteriorly; posterior end broad, rather obliquely truncate, very widely gaping, or even dilated at the margins; buccal end narrowly rounded and nearly closed. Base almost straight, or but slightly convex, rounding up gradually in front and much more abruptly unto the truncate posterior border. Dorsal outline concave from the beaks to its elevated posterior extremity. Beaks moderately elevated, slightly flattened, more or less angular behind, incurved, and located about half way between the middle and the anterior end. Surface marked by obscure concen-

tric undulations, which curve abruptly upwards parallel to the truncate anal margin; these undulations are crossed by radiating rows of very small granules, only visible by the aid of a lens.

The anterior muscular impression is oval, arcuate, and surmounted by a small accessory impression nearly detached from it. The posterior muscular impression is broad oval, not very deep, and placed close up under the posterior extremity of the dorsal edge; from this impression, the pallial line descends, with a broad gently concave curve, so as to form a broad very shallow sinus.

Length 2·85 inches; height from ventral margin to middle of dorsal edge 1·36 inch; do. from ventral margin to a line drawn from summit of beaks to the elevated posterior extremity 1·50 inch; greatest transverse diameter (near the centre) 1·11 inch; breadth of posterior hiatus 1·07 inch, height do 1·44 inch.

Locality and position.—Leavenworth City, Kansas Territory, Coal measures.

ALLORISMA? COOPERI.

Panopæa Cooperi, Meek and Hayden. Trans. Albany Inst. vol. iv. p. 11. March 2d, 1858.

This species bears such a striking similarity, in form and general appearance, to some of the Jurassic and Cretaceous Panopæas, that we were at first lead to refer it to that genus, supposing as we then did, that it was a Permian species. Since that time we have collected specimens of it in Kansas, showing that the hinge is edentulous, consequently it cannot be a *Panopæa*; we therefore now refer it provisionally to the genera *Allorisma*, King, to which it appears most nearly related, though we are not quite sure it is a true *Allorisma*.

We found it ranging through a considerable thickness of the upper coal measures, but we do not think it ranges quite up into the Permian.

Locality and position.—Near Helena, Kansas Territory, Upper Coal Measures.

PLEUROTOMARIA SUBTURBINATA, n. sp.

Shell rather thick, obliquely conical; spire moderately elevated, pointed at the apex; volutions six to six and a half, convex and angular in the middle, obliquely concave above, and having around the middle of the last one, just below the angle, a rather narrow revolving shallow sulcus. Umbilical region not much depressed, but perforated by a very small pit; aperture suborbicular. Surface ornamented by small revolving lines, only preserved on the under and outer sides of the body whorl in our specimen, which is somewhat worn, and shows no lines of growth. The angle on the middle of the whorls appears to be double, or composed of two closely set parallel lines; suture linear but distinct.

Length 0·36 inch; breadth 0·29 inch; spiral angle regular, divergence 69°.

Locality and position.—Same as last.

PLEUROTOMARIA HUMEROSA, n. sp.

Shell ovate turbinate; spire turreted, moderately elevated and pointed at the apex. Volutions five to five and a half, very convex, more or less obliquely flattened or a little concave above, rounded below, and distinctly angular at the outer margin of the upper flattened side. Suture distinct; umbilical region slightly depressed, and having a very small perforation. Surface ornamented by about ten rather strong revolving lines, only four of which are visible on the turns of the spire, below the angle; on the obliquely flattened space above, there are usually six or seven revolving striæ, which are not more than half as large as those below the angle. Aperture suborbicular. No lines of growth are visible on our specimens, which are somewhat worn.

Length 0·62 inch; breadth 0·50 inch, spiral angle about 62°.

Locality and position.—Grasshopper creek, K. T., Coal Measures.

The following are the descriptions by Prof. HEER of the fossil plants from No. 1 of the Nebraska section, referred to on page 257.

1. *Liriodendron Meekii*, Mihi.

L. foliis trilolbatis, lobo medio apice rotundato, late emarginato, basi angustato, lobis lateralibus obtusis.

Differt a *L. Procaccinii*, Unger, et a *L. tulipifera*, L., lobis rotundatis et lobo medio basi angustato.

This leaf is furnished with a slender petiole, towards which it gradually diminishes; the midrib extends to the apex; towards the middle of the lobes on each side proceeds a secondary nerve, which also sends out on both sides tertiary nerves at rather acute angles. Further down on each side (near the base) is another secondary nerve, which inosculates with the former. This is a mode of structure which characterizes Liriodendron; further up there arises very delicate secondary nerves, which likewise branch off from the petiole.

2. *Sapotacites Haydenii*, Mihi.

S. foliis obcordato-ellipticis, basi sensim attenuatis integerrimis penninervis, nervis secondariis numerosis, ramosis angulo-acuto egredientibus.

Affinis *S. mimusops*, Heer. Flora Tert. Helv. I. Taf. ciii. f. 4.

The leaf gradually diminishes toward the base, rounded toward the apex, rather deeply emarginate, margins entire. From the midrib which gradually becomes slender and dies out, proceed at acute angles very numerous secondary nerves which have the peculiarity of ramifying very much.

3. *Laurus primagenia*, Unger. Taf. 13, fig. 1?

Heer, Flora tertiar Helvet. Taf. lxxxvi. fig. 1.

The form and nervation agree as far as the leaf has been preserved, with the preceding species, only the leaf is diminished in a somewhat less degree toward the petiole, and prolonged toward the apex as in Unger.

It looks quite similar to the leaves of Laurus primagenia, which I have received from Corfe, in the Isle of Wight.

Dunker (Paleontographica, iv. Taf. 34, f. 2,) has figured a similar leaf as *Salicites Hartigi*, from the chalk of Blankenburg. But in this, along with stouter secondary nerves, there are always several more delicate ones.

4. *Leguminosites Marcouanus*, Mihi.

L. foliis magnis, obovalibus, apice obtusis, emarginatis nervis secondariis sparsis; basilaribus approximatis.

The leaflet is very large, but ceasalpinia-like, at the base somewhat unequal, obtusely rounded. It is also rounded at the apex and deeply emarginate. The midrib dies out toward the apex; secondary nerves very sparse and delicate, one on each side near the base, the next following ones distant and much curved.

In its form it reminds one strongly of *Cæsalpinia Falconeri*, but is much larger. It would, however, be important to know whether the leaf is leather-like or thin skinned. If the latter is the case, the leaf probably belongs to Cæsalpinia, but if it is leather-like, the Dalbergia are to be compared, as among them similarly shaped leaves are found.

5. *Populus leuce*, Unger. Taf. 15, fig. 6?

Phyllites leuce, Rossmassler, Blatter Von Altsaltel, Taf. 3, fig. 12?

Unfortunately this leaf is not preserved entire, and the margin is no where complete. So far, however, as the form can be determined, it agrees with *Populus leuce*, as also in the nervation. Thus we have a stout midrib, and from this mid rib above the base of the leaf proceeds on either side stout secondary nerves, which then send off outwardly two or three rather stout tertiary nerves, which are curved toward the apex. Besides these, springs forth on each side below them, but almost at the same spot, a delicate secondary nerve which does not ramify any further, but dies out near the margin. At about the middle of the height of the leaf, there springs from the midrib on each

side, another secondary nerve, which runs nearly parallel with the basal one, and further above are two other similar ones. The nervules are curved, soms remaining single, others forked. In all these points the Nebraska leaf agreee with *Populus leuce*, but for a positive determination we must wait for leaves whose margins have been preserved.

A similar leaf from the Isle of Wight has been figured by Prestwieh (on the structure of the strata between the London clays, &c., Quart. Jour. x. pl. iv. fig. 1, 2), but in this (of which I have specimens before me) the lower basal nerves are much stouter, and the two upper ones are curved much more toward the apex, while the midrib cannot send forth any more such stout secondary nerves farther up.

At first sight the leaf also appears similar to *Credneria integerrima* Zenker, Paleontographica, but in this leaf the midrib is much stouter, and the side nerves are more bent and curved towards the apex, otherwise the nervules are of similar structures.

6. *Populus cyclophylla*, Mihi.

P. foliis orbiculatis, basi attenuatis, triplinervis, integerrimis.

Similar to the preceding, and may perhaps belong to that species as a younger leaf, yet the base of the leaf is attenuated toward the petiole, and there are at the base of the leaf only three nerves. On the supposition that the former leaf is *Populus leuce* it is assumed that it is rounded at the base, but should more perfectly preserved specimens show that, like the small one, it is diminished at the base into the petiole, it would form a species different from *Populus leuce*, as in this latter species the leaves are rounded at the base, and moreover possess some obtuse teeth on the margin.

7. *Phyllites obtusi-lobatus*, Mihi.

Folium trilobatum, lobis integerrimis, obtusiusculis.

Perhaps belonging to *Liriodendron Meekii*, but Liquidambar and Acer are also to be taken into consideration. It is, however, too imperfectly preserved to be determined with certainty. It seems to have three lobes with entire margins.

8. *Phyllites obcordatus*, Mihi.

Folium obcordatum, basi angustatum, integerrimum, nervo-primario pone-cto, nervis secondariis angulo acuto, egredientibus, debilibus, subramosis.

Valde affinis Ph. clusiodes, Rossmassler, Beitrage 33, Taf. 6, fig. 24, et non nisi nervis secundariis fortioribus et ramulosis distinguænim.

The Corresponding Secretary read his report for the last two months.

The following reports from the Recording Secretary, the Librarian and the Curators were read:

REPORT OF THE RECORDING SECRETARY FOR 1858.

During the past year, Dec. 1, 1857, to November 30, 1858, there have been elected sixty-nine members and eight correspondents.

Of these thirteen members were not residents of the city at the time of their election.

Two members have resigned.

Three have forfeited their membership.

Seven have died, to wit: Mr. Charles McEuen, Mr. W. Frederick Rogers, Professor John K. Mitchell, M. D., Professor Robert Hare, M. D., the Hon. Job R. Tyson, Edward Minturn, M. D., and Gavin Watson, M. D.

The deaths of the following correspondents have been announced: Mr. George R. Gliddon, Mr. John A. Vancleve.

The following Papers have been read before the Academy, and ordered to be published in the Proceedings or Journal.

By Spencer F. Baird, "Description of a new Phyllistome Bat from California."

By W. G. Binney, two, to wit: "Notes on American Land Shells, No. 3 and No. 4."

By John Cassin, two, to wit: "Description of a new Tanager from the Isthmus of Darien, and Note on Selenidera spectabilis;" "Catalogue of Birds collected by A. A. Henderson, M. D., U. S. N., at Hakodadi, Island of Jesso, Japan, with notes."

By T. A. Conrad, "Observations on a group of cretaceous fossil Shells from Tippah Co., Miss., with descriptions of fifty-five new Species," published in the Journal.

By John Xantus de Vesey, "Descriptions of two new Species of Birds from the vicinity of Fort Tejon, California."

By George W. Fahnestock, "Memoranda of the effects of Carburetted Hydrogen upon a collection of exotic Plants."

By James C. Fisher, M. D., "Description of a new Species of the Genus Argynnis."

By Charles Girard, M. D., "Notes upon various new Genera and new Species of Fishes in the Museum of the Smithsonian Institution," etc.

By Edward Hallowell, M. D., "Descriptions of several new North American Reptiles."

By Edward Hallowell, M. D., and Joseph W. Jones, M. D., "Notes upon the Anatomy and Habits of Reptiles."

By Wm. A. Hammond, M. D., U. S. A., two, to wit: "Secondary formation of Blood Crystals," read before the Biological Department, "Observations on the effects of certain Vegetable Diuretics," read before the Biological Department.

By Henry Hartshorne, M. D., "Abstract of the Proceedings of the Biological Society of Philadelphia," read before the Biological Department.

By F. V. Hayden, "Notes to a Second Edition of a Geological Map of Nebraska and Kansas," etc.

By T. Charlton Henry, M. D., U. S. A., "Description of a new Toxostoma, from near Fort Thorn, New Mexico."

By Isaac Lea, LL. D., eight to wit: "Descriptions of exotic Genera and Species of the Family Unionidæ." "Descriptions of a new Helix and two new Planorbes." "Descriptions of eight new Species of Unios." "Descriptions of four new fresh water Mollusks from the Isthmus of Darien and Honduras." "Description of seven new Species of Margaritana and four new Species of Anodonta." "Descriptions of twelve new Species of Uniones and other fresh water shells of the United States." "Description of the embryonic forms of thirty-eight Species of Unionidæ," published in the Journal. "New Unionidæ of the United States," published in the Journal.

By John L. Le Conte M. D., three, to wit: "Descriptions of new Species of Coleoptera, chiefly collected by the U. S. and Mexican Boundary Survey under Major W. H. Emory." "Catalogue of Coleoptera of the regions adjacent to the Boundary Line between the United States and Mexico," published in the Journal. "Note on the Species of Eleodes found within the United States."

By Joseph Leidy M. D., two, to wit: "Notice of Remains of extinct Vertebrata from the Valley of the Niobrara River;" "Contributions to Helminthology."

By F. B. Meek and F. V. Hayden, M. D. "Descriptions of new organic Remains, collected in Nebraska Territory, etc."

By J. H. Slack, "Catalogue and notes on the Egyptian Antiquities in the collection of the Academy of Natural Sciences of Philadelphia."

By William Stimpson, four, to wit: "Prodromus Descriptionis Animalium evertebratorum, quæ in Expeditione ad Oceanum Pacificum septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rogers ducibus, observavit et descripsit W. Stimpson, Partes tertia, quarta, quinta et sexta."

By W. J. Taylor, "Mineralogical Notes."

By P. R. Uhler, "Descriptions of new species of Neuropterous Insects, collected by the North Pacific Exploring Expedition, under Com. J. Rogers.

By Alexander Wilcocks, M. D., "Researches on an Optical Illusion."

During the year the By-Laws have been amended as follows:

A new Chapter has been made, entitled Chapter XII; on the Creation and Government of Departments. (See Proceedings 1858 p. 15.)

Under these laws the Department A. has been organized and denominated the Biological Department. It has been in active operation since April last, and its contributions to the Proceedings of the Academy attest the zeal and activity of its members.

The By-Laws have been also amended, as follows:

CHAPTER X.

Committee on Proceedings.

ART. I.—The Committee on Proceedings, immediately after its election shall appoint from among its members a Secretary, a Treasurer, and a Distributor.

The Secretary shall attend to the editorial management of all matters assigned to the care of the Committee for printing or publication.

The Treasurer shall have charge of whatever relates to the finances of the Committee. He shall keep a careful account of its receipts and expenditures, and pay quarterly to the Treasurer of the Academy all monies received. He shall also keep a correct account of the number of copies of the Proceedings printed, the number issued to subscribers and the number exchanged, and report the same with a statement of his accounts for the year to the Academy, at the meeting for business in December of every year, and the Distributors shall attend to the prompt transmission of copies of the Proceedings to subscribers, as well as to Societies and Periodicals with which exchanges are made.

ART. II.—It shall be the duty of the Committee to receive all Papers ordered by the Academy to be published in the Proceedings, and to print the same in a proper manner, and as far as practicable in the order in which they have been reported by Committees. Also, to prepare and publish such abstracts from the Proceedings of the Academy as it may deem expedient, as well as summaries of verbal communications, made at meetings of the Academy or any of its Departments, but only from notes furnished by the author, which the Committee is hereby authorized to modify or decline, subject, however, to an appeal to the Academy.

Also, to superintend the printing and distribution of such memoirs, catalogues, etc., as the Academy may order to be published: and

Also, to read and correct the proof sheets of all papers, which shall likewise be submitted, when practicable to their respective authors.

ART. III.—The Committee is hereby authorized to exchange the Proceedings for other periodical publications, connected with the Natural Sciences, provided that the Academy may at any time direct the discontinuance of such exchanges.

ART. IV.—No copy of the Proceedings shall be presented to any individual or society, except by order of the Academy, but the Committee may sell single volumes at twenty-five per cent. advance on the price to subscribers.

ARTICLE V.—No author shall be permitted to make any other than verbal alterations in a Paper while it is in the hands of the Committee on Proceedings, without the consent of the Academy, nor shall the Committee make any alterations in a paper committed to it, without the consent of the author. All alterations proposed, (other than verbal), must be read to the Academy, and if the types have been set, they shall be made only at the expense of the author.

ARTICLE VI.—All illustrations of publications in the Proceedings shall be at the cost of the author, unless otherwise ordered by the Academy; and drawings of the same shall be considered his property, and shall be returned when called for.

[Dec.

ARTICLE VII.—Authors of communications printed in the Proceedings are privileged to obtain any number of separate copies thereof from the printer on such terms as the parties may agree; but in no instance shall the Academy be held responsible for the expense.

ARTICLE VIII.—The Committee shall be responsible for the proper and methodical arrangement of the material published, and for the prompt appearance of the Proceedings, whenever sufficient matter has accumulated for the completion of sixteen pages; and if any portion thereof, in the opinion of two-thirds of the members present at the meeting for business next succeeding its publication, shall be negligently prepared, the same shall be reprinted at the cost of the Committee.

ARTICLE IX.—On all points connected with the management of the Proceedings, not provided for in this Chapter, the Committee shall be governed by special direction of the Academy.

Amend Article III. Chapter IX. by inserting after the word publication in the second line, the words "in the Journal."

Also, amend Article I. Chapter VI. by striking out all after the words "in the library" in the 6th line, and inserting "13, the Auditors each to consist of three members; 14," the Publication Committee, and 15, Committee on Proceedings, each to consist of five members, whose term of service shall be one year; and all these, except the Auditors and Publication Committee, shall be elected at the last meeting in January of each year.

Amend Chapter VI. Article VIII. by inserting after the words "Chapter IX." in the 2d line, "and the Committee on Proceedings shall have charge of the other publications of the Academy under the rules prescribed in Chapter X, and they," and strike out the word "and" after the words "Chapter IX."

Change chapters X. and XI. to XI. and XII. and Chapter XIII. to Chapter XIV.

All of which is respectfully submitted

B. HOWARD RAND, M. D.
Recording Secretary.

Hall of the Academy, 28th December, 1858.

LIBRARIAN'S REPORT FOR 1858.

During the present year, ending December 28th, 1858, 422 volumes and 1146 periodicals and pamphlets have been added to the Library of the Academy. The various subjects on which these treat, and the number belonging to each subject, are shown in the following table:

General Natural History and Mammalogy,	136	Ethnology,	3
Ornithology,	146	Physics and Chemistry,	39
Conchology,	53	Transactions, Journals, Proceedings, Reports, &c. of Societies,	759
Entomology,	59	Voyages and Travels	73
Botany,	47	Medicine,	3
Geology, Palæontology and Geography,	126	Biography,	4
Anatomy, Physiology, &c.,	59	Miscellaneous,	31
Mineralogy,	24		
Herpetology and Ichthyology,	6	Total,	1568

Of the above works 76 have been contributed by authors, 84 by editors, 51 by members, correspondents and others, 351 by societies and corporations, and 996 by Dr. T. B. Wilson, making a total of 1768 additions to the Library in 1858.

During the year 962 volumes have been substantially bound; 365 are still in the hands of the binders, making in all 1327 volumes.

It will thus be seen that the Library was never in a more flourishing condition, nor in a better state of preservation than at the present time.

Respectfully submitted,

JAS. AITKEN MEIGS.

REPORT OF THE CURATORS FOR 1858.

The Curators, through their annual report, take the opportunity of expressing their pleasure in announcing to the Academy, that the Museum, so long confided to the supervision and care of the same gentlemen, is in the best state of preservation, and is gradually and steadily advancing in its arrangement. They also take occasion to express regret at the resignation of one of their number, Mr. Ashmead, who has for seventeen years devoted attention to the increase and preservation of the collections of the Academy.

In most of the departments of the Museum, for some years past, members have been actively engaged in the arrangement and labelling of specimens, but up to the present time, two important collections, those of recent Radiates and Invertebrate Fossils, have been entirely neglected. The collection of Fossils, just mentioned, is a very large and important one, but loses much of its value from the difficulty of applying to it in its present condition. We hope, before long, some of the members may be induced to give it the attention that has been devoted to other departments.

During the past year Mr. Slack has given his aid in the labelling of the collection of Mammalia. Our collection of Birds, which has few parallels in the world, is in excellent condition, and is steadily advancing in its arrangement through Dr. Wilson; who has also further enriched it, during the last year, with many rare specimens. The collection of Reptiles, well arranged and labelled by Dr. Hallowell, has unfortunately lost the services of the latter, temporarily it is to be hoped, from illness, as many of the members are aware. The collection of Fishes continues to be arranged by Drs. Bridges and Morris.

Mr. Binney, who has been engaged for several years in arranging the collection of Mollusks, has given us the following information.

The collection of shells consists of about 9,000 species of many varieties. About one half are labelled. All the terrestrial and fluviatile species have been carefully studied; and the names attached to them may be depended upon. The marine genera have been labelled from monographs, and through the assistance of friends familiar with them. A large part of them have the names attached by Sowerby, Cuming, and Verreaux, from whom they were purchased. In the arrangement of the collection, Jay's catalogue has been used, and the author's system followed. The Gasteropods commence in the western part of the hall: the Tropiopods in the eastern part; and the labels are on cards adopted in the other departments of the Museum—distinguishing the principal parts of the world by colors. A large portion of the Conchological collection is contained in the drawers beneath the cases in which the others are exposed to view. The Academy is indebted to Mr. J. G. Anthony, of Cincinnati, for the determination and labelling of the Naiades. The principal contributors to the cabinet of conchology have been Messrs. Say, Griffith, and Wilson.

The collection contains many of the types of American authors, as follow: 2 species *Anculosa*, Anthony; 4 *Amnicola*, Say, Anth., Lea; 2 *Ampullaria* Say; 2 *Amphidesma* Say; 1 *Astarte* Say; 1 *Achatina* Say; 1 *Cochlodesma* Conrad; 1 *Corbula* Say; 5 *Cyclas* Say; 1 *Crepidula* Say; 2 *Cylindrella* Gould; 1 *Cerithium* Say; 1 *Donax* Say; 1 *Dentalium* Stimpson; 2 *Helicina* Say; 14 *Helix* Say, 6 Binney, 4 Gould, 1 Green, 1 Lea; 17 *Limnea* Say, 1 Adams; 1 *Mya* Conrad; 1 *Mactra* Say, 1 Con.; 1 *Merodesma* Con.; 1 *Modiola* Say; 1 *Mytilus* Say; 8 *Melania* Say; 8 Con., 4 Anth., 2 Ravenel, 1 Lea; 1 *Melampus* Say; 1 *Natica* Couthouy; 1 *Nassa* Say; 2 *Nucula* Couth.; 1 *Patella* Say; 2 *Physa* Say; 4 *Planorbis* Say; 1 *Porena* Say; 3 *Pupa* Say; 8 *Paludina* Say, 2 Lewis, 1 Con.; 1 *Pandora* Say; 1 *Sigaretus* Say; 2 *Succinea* Say, 2 Binney, 1 Gould; 1 *Solecurtus* Con.; 2 *Sanguinolaria* Con., Say; 1 *Saxicava* Say; 2 *Turbo* Say, Couth.; 8 *Unio* Say, 1 Lea; 2 *Valvata* Say.

Mr. Durand informs us that the North American Herbarium of Phaenogamous plants and ferns, containing about 10,000 species, is now completed.

The donations to the different departments of the Museum for 1858, are as follows:

Mammals.—Of these, 40 specimens of 14 species from Kansas, were presented by Dr. W. A. Hammond, U. S. A. Ten other specimens of 8 species were presented, principally by Dr. Corse, and his excellency W. F. Packer.

Birds.—Fifty-seven species from Japan, the Phillipines, and China, were presented by Dr. A. A. Henderson, U. S. N.; 15 specimens of 10 species from Kansas by Dr. Hammond; and 15 of 12 species by Messrs. Vaux, Sergeant, J. H. Powel, etc.

Reptiles.—Of these, R. Swift, Esq., of St. Thomas, W. I., presented 60 specimens of 12 species; S. Drinker, of China, 18 of 12 species; J. H. Slack, 47 of 11 species; Dr. J. C. Fisher 16 of 9 species; Dr. Henderson 9 of 3 species; and 18 of 10 species were presented by Messrs. Wood, Richardson, etc.

Fishes.—S. Drinker of China presented 6 species; W. C. Taylor 8 species; Mr. Slack 24 of 9 species; Dr. Fisher 15 of 4 species, Dr. Goddard 5 of 2 species; and 12 of 10 species were presented by Edward Harris and others.

Mollusks.—Mrs. R. Pierpont of this city, presented a choice collection, containing about 1,000 species of shells from all parts of the world. W. G. Binney presented 110 species of rare land and fluviatile shells; James Postell 517 specimens of 74 species of shells; Rev. E. R. Beadle 20 species; W. A. Haines 12 species; F. A. Sauvalle 52 of 20 species; J. G. Anthony 15 species; and about 500 specimens of 100 species were presented by Messrs. Pease, Farquhar, Moore, Allen, Henderson, B. H. Coates, Thompson, Wurdeman, and the Smithsonian Institution.

Articulates.—Of Crustacea 20 specimens of 15 species were presented, principally by W. C. Taylor and Dr. J. L. Le Conte.

Of Insects, F. Schafhirt presented 2129 of 709 species of coleoptera and 280 of 75 species lepidoptera; Dr. Leidy 1484 of 500 species lepidop., hymenop., orthop., dip., neurop., and coleoptera; Dr. J. C. Fisher 614 of 193 species do.; S. Powel 295 of 90 do.; C. C. Abbott 167 of 129 do.; Dr. J. L. Le Conte 140 of 65 do.; E. T. Cresson 511 of 400 do.; Dr. R. Bridges 90 of 36 do.; James Ridings 50 of 30 species of diptera; J. S. Hawkins 79 of 62 lepidoptera; Dr. F. V. Hayden 95 of 55 species orthop., dip., hemip., hymenop.; Samuel Powel, Jr., and J. Hare Powel, Jr., 415 of 215 lepidop., dip., hymenop., hemip., orthop., neurop., and coleop.; E. Tilghman 50 of 20 do.; J. D. Sergeant 32 of 20 do.; and Messrs. A. A. Henderson, Drexler, and Remont 124 of 60 do.

Of Arachnides and Myriapods there were presented 94 specimens of about 40 species by Messrs. C. C. Abbott, E. T. Cresson, S. Drinker of China, J. S. Hawkins, and Dr. J. M. Sommerville.

Radiates.—Dr. A. A. Henderson presented 16 species of corals from Singapore; besides which we have received 9 specimens of corals and echinodermus.

Anatomy.—Dr. Hammond presented 2 Indian skulls; Dr. J. E. Semple, U. S. N., 2 Oriental skulls; and 11 others were deposited by Drs. T. J. Turner and J. A. Meigs. Of skulls of mammals, 5 have been presented, by Messrs. Hammond, Vaux, J. B. Fisher, and J. M. Naglee. Two skeletons were presented by Mr. Ashmead, and Dr. S. W. Mitchell.

Organic Remains.—Of vertebrate remains, those of the *Hadrosaurus Foulkii* recently presented to the Academy by W. Parker Foulke, are the most valuable. To Dr. J. M. Hines, W. A. B. Norcom and Eppes we are indebted for numerous miocene cetacean remains from North Carolina and Virginia. Of other vertebrate fossils, there were 76 specimens, principally presented by Messrs. Jeanes, Sergeant, Powel, Slack, Camac, Johnston, and Moore. There were further obtained by exchange, 180 specimens of vertebrate fossils and casts from France. Of invertebrate fossils, Dr. W. Spillman presented 70 of 21 species from the Greensand formation of Mississippi; and there were about 103 from various localities, presented by Messrs. J. M. Hines, T. P. Cleveland, S. W. Clanton, H. and R. Cox, D. Christy and others.

Of fossil plants 12 specimens were presented.

Mineralogy.—Besides a small collection of minerals from Dr. S. W. Mitchell, we have received 63 specimens from Messrs. Trautwine, Le Conte, R. C. Ludlow, Vaux, Coleman, etc.

Miscellaneous.—Of miscellaneous specimens there were received 33 specimens.

Through the Biological Department we have received 213 mounted microscopic specimens, principally from Messrs. S. Powel, J. H. Slack, J. Queen, W. A. Hammond, and J. C. Morris. In addition, we have obtained in this way 11 miscellaneous specimens.

In conclusion the Report is respectfully submitted by

JOSEPH LEIDY,
Chairman of the Curators.

The Treasurer's report was read and referred to the Auditors.

The Publication Committee laid on the table Part 1, Vol. 4, of the second series of the Journal, and by permission their report was postponed until the next meeting for business.

The following was unanimously adopted:

Resolved, That it is with regret the Academy has received the announcement from the President, Mr. George Ord, that he no longer can retain the office he has held with so much satisfaction to the members and advantage to the interests of the Academy, and that in his retirement he carries with him the best wishes of his fellow members for his future welfare and happiness.

The election of officers for the ensuing year was held in accordance with the by-laws, with the following result:

President, ...	ISAAC LEA.
Vice-Presidents, ...	Robert Bridges, John LeConte.
Correspondent Secretary, . .	John L. LeConte.
Recording Secretary, . . .	B. H. Rand.
Librarian, ...	J. Aitken Meigs.
Curators, ...	Joseph Leidy. Wm. S. Vaux, John Cassin, J. D. Sergeant.
Auditors, ...	Joseph Jeanes, Wm. S. Vaux, Aubrey H. Smith.
Publication Committee, . .	Wm. S. Vaux, Robert Bridges, Isaac Lea, W. S. W. Ruschenberger, Joseph Leidy.

[Dec.